AMERICAN VETERINARY REVIEW.

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EDITORIAL.

EUROPEAN CHRONICLES.

ACTINOMYCOSIS.—In their excellent work on microbian diseases, Profs. Nocard and Leclainche say: "Observation has demonstrated that contagion plays a very restricted part in the etiology of actinomycosis," and the frequency of the appearance of the disease seems to depend merely on an infection due to the introduction into the organisms in some way of the vegetal parasite actinomyces.

Commonly found on vegetables, under a yet undetermined state, actinomyces enter the organisms ordinarily through the anterior digestive organs, tongue, fauces and pharynx, are arrested between the molar teeth, which sometimes are affected with caries, a condition which becomes a predisposing cause. Erosions of mucous membrane, inhalation of the dust loaded with germs, invasion through the udder, some surgical operations, are all to be taken into consideration when the means of infection are examined. The skin itself is not exempt from this possibility of admission to the parasite, and wounds by harness and collars explain sufficiently the frequency of the localization of the disease upon the neck.

At a recent meeting of the Academie de Medecine of Paris, an interesting case of actinomycosis in the human subject was recorded where the point of infection, though cutaneous, is peculiarly rare. The case was that of a young woman who worked in the fields and became affected with actinomycosis of the um-

bilicus by inoculation from the beards of wheat which had penetrated through her open chemise. This mode of intoxication is quite typical for this case, but is it not possible that similar effects could be found among our domestic animals, especially when young and at a time when the cicatrix of the umbilicus is yet incomplete or delicate and likely to be made raw by the slightest excoriation by rubbing against a hard substance, and in that way the nature of the various growths which are sometimes found in that region and which we hear of being removed, be positively established and proved to be actinomycotic.

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SOCIÉTÉ CENTRALE DE MÉDECINE VÉTÉRINAIRE.—This is properly speaking the national representative in France. Organized in 1844, it was recognized as an institution of public usefulness by special governmental legislation in 1878, and, strange as it may seem, although *the* society of France, its membership is comparatively very small. The number of members is fixed as follows: 40 active members (36 at least must be veterinarians), 10 honorary, 6 national associates, 6 foreign associates, 70 national correspondents, 30 foreign correspondents (among whom are found veterinarians from every part of the world)—a total of 162 all told. How different is this society from the national association of the United States, where the number of members is so large.

The meetings of the Société Centrale take place twice a month, in Paris. They are always very complete and of unusual interest. Essentially given to scientific discussions, and, laying aside all subjects of no scientific value to the veterinarian, the society pays no attention to the discussion of other subjects which may be of importance to the profession at large —other associations having charge of those. It is at the meetings of the Société Centrale that all papers, commissions, investigations, etc., are presented, referred to various committees, reported and discussed, and a final commission, known as the Rewarding Commission, recommends the granting of prizes to the most deserving. At the said meeting 4 *large gold*, 10 *sil-*

ver, 5 *bronze* medals were awarded, also a special prize of 400 *francs* ($80).

With the large number of veterinarians that are now found in the United States, and the great number of them who belong to the national association, would it not be an easy matter to do something analogous to what is done by the French society as a means of stimulation to original work, and to add to the pleasant time of the annual meeting by a distribution of prizes? The association could make no better use of its bank account.

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OVOID BACTERIA — PASTEURELLOSIS—SALMONELLOSIS.— Our readers have already been made acquainted with some of the work done by Professor Lignières, and we hope to be able to present them with more, especially with the important discoveries that he has made in his first inquiries into some diseases prevailing among domestic animals in the Argentine Republic.

The study that Professor Lignières has made of the disease of cattle known under the name of "*enteiqué*," of that of sheep called "*Lombrix*," the discovery of their true microbian nature, that of a means of vaccination will prove not only a valuable addition to the history of veterinary pathology and the standing of medical sciences, but will have for the people of the South American Republic the saving of many animals whose loss might prove ruinous to the country.

Enteiqué and *Lombrix* are names which must be now dropped from veterinary nomenclature, and that of Pasteurellosis (bovine or ovine) must be substituted for those two affections. This denomination of Pasteurellosis, given by Professor Lignières to the diseases of the Argentine Republic is not new with him; he had already applied it to typhoid fever, infectious pneumonia, etc., which he gathered under the name of "Equine Pasteurellosis." All these affections being due to microbes which belong to the gender *Pasteurella of Trevisan*, and which, known under the very general name of *ovoid bacteria*, present some general characters of resemblance, viz., "all are discolored by

the gram; none of them develop fermentation of sugar or liquefy gelatine. They all have to a supreme degree the property of localizing their action on the intestines, or the lung, and give rise easily to lesions of hæmorrhagic septicæmia." For Professor Lignières, the Pasteurella is but one species among ovoid bacteria, and differentiates it from the Salmonella which imposes the name of Salmonellosis for the pneumo-enteritis of swine, whose microbe was so well described by Dr. D. E. Salmon, of Washington.

This distinction of two species of ovoid bacteria implies the probability of others as causes of many other microbian diseases, not yet classified, and opens a larger field of inquiry at the hands of microbiologists, and among them the learned Alfort professor intends to do his share. To facilitate his investigations he has asked us to call upon the veterinarians of the United States for help in the shape of information, lesions, specimens, etc., relating to all ovoid bacteria, which give rise to the phenomena which were known as hæmorrhagic septicæmia. All such addressed to Prof. Lignières, Laboratoire des Haciendados, Santa Fé, 4299, Buenos Ayres, will be thankfully received and credited in his works. A. L.

VETERINARY LEGISLATION.

While we had hoped to be able to announce in this issue of the REVIEW that the section of the Army bill placing the veterinary surgeon upon the commissioned-officer list, with rank, pay, and authority of a second lieutenant of cavalry, we are yet in that hopeful state of expectancy caused by the entire measure being held up in the Senate. There can be no doubt of the final enactment of that section if the reorganized army bill becomes a law, and we take it that the present temper of the American people will not longer tolerate the farcical standing army of 27,000 men, especially since assuming a position among the Eastern powers. Under the guidance of Chairman Salmon, of the Committee on Army Legislation of the A. V. M. A., the demands of the profession throughout the

country were made known in no uncertain manner; the members of Congress and Senators were besieged with letters from their veterinary constituents until they were prepared to make an unconditional surrender. As an illustration of the feeling on this point, the editor of the REVIEW received a very satisfactory reply from Senator Platt, of New York, to whom he had written in the interests of the amendment, and in concluding he gave expression to his experience with the members of the profession of the State as follows: "I am quite prepared to accept your statement that your profession is 1000 strong in our State, if I may judge by the number of letters I have lately received of a similar import to yours." Whatever the fate of the Army bill, the veterinarians have won a victory which should encourage them to follow up the advantage and reap the reward of their hard work.

Between seeking new laws and protecting those which have been secured, the veterinary profession of New York State is testing its reputation for vigilance. There are now in committee no less than three bills up to date asking the legislature to re-open the registration books of 1886, and allow them to remain so until Tom, Dick, and Harry can have their names recorded as having practiced the veterinary healing art prior to the date mentioned, without regard to qualification. These bills were introduced in the Assembly and are numbered 197, 243, and 329. They were all referred to the Committee on General Laws, of which Assemblyman Fish is chairman, and the profession of the State has been importuned by the argus-eyed chairman of the Legislative Committee of the State Veterinary Medical Society, Dr. William Henry Kelly, to write to Mr. Fish and protest against the preposterous propositions of which he is custodian. We have no doubt that the Empire State veterinarians have responded in their usual vigorous manner.

We print elsewhere two bills seeking legislation of a different kind. One of these is known as Assembly bill 650, and seeks to establish a State Live Stock Sanitary Commission, to

consist of the Governor *ex-officio*, and five other commissioners, to be appointed by the Governor, as follows: The Commissioner of Agriculture, a practical breeder of live stock, the Secretary of the State Board of Health, and two competent and qualified veterinarians. The bill recites the duties and powers of this commission, and authorizes it to expend a sum not exceeding $50,000 to carry out the provisions of the Act. There is little doubt that the bill is on the line of advancement, and if properly enforced would result in great good to the live stock interests of the State. It is a vast improvement over one of a similar import introduced a few years ago, but we regret that it does not emanate from within the body of one of the representative veterinary organizations of the State, and have behind it the united profession, who could move upon the law-makers with a solid front and command their attention and support. The bill also omits the important principle of civil service. We fear that such fragmentary attempts will throw distrust upon our demands when seeking legislation upon measures which have the approval of the whole profession.

DR. HOSKINS' CANDIDACY FOR MAYOR OF PHILADELPHIA.

That very versatile veterinarian, our esteemed friend and fellow-worker, Dr. W. Horace Hoskins, editor of the *Journal of Comparative Medicine and Veterinary Archives*, graduate of the American Veterinary College, past-President of the United States Veterinary Medical Association, has just undergone the exciting vicissitudes of a political campaign, having been the standard-bearer of the Democratic party for the exalted position of Mayor of the great city of Philadelphia. Nominated as a Democratic and reform candidate in a city whose overwhelming Republicanism has for years made the position upon the ticket of the opposition an empty honor, we are proud to say that a member of our profession has awakened in the people of the City of Brotherly Love an enthusiasm seldom felt in a minority candidate; and although he was unable to overcome the great

Republican majority, he inspired a respect and admiration for his many qualities as an ideal citizen and candidate as to add to his reputation and future prospects; and the search-light of a political campaign has demonstrated more than any circumstance could possibly have done that the modern veterinarian, educated, honest, ambitious, capable, and energetic, is a fitting aspirant for any position in the gift of the American people.

We congratulate Dr. Hoskins upon the character of his ordeal, and, while regretting that he was unable to reach the coveted goal, feel that, having drawn the profession prominently before the country, in a most enviable light, reflected from his own personality, we are fortunate in retaining him as a worker in our ranks. He could and no doubt would have served us in other respects through the opportunity of his position, to the end of securing that ideal system of municipal meat and milk inspection; but he will be enabled now to achieve more in that direction than formerly through the increased confidence of the public in the profession which he adorns.

ORIGINAL ARTICLES.

VETERINARY HYGIENE AND SANITATION.

By W. H. Dalrymple, M. R. C. V. S., Baton Rouge, La.

A Paper read before the Louisiana Farmers' Institutes.

The trite aphorism that "an ounce of prevention is worth a pound of cure," is as true to-day as in any age of past history.

Hygiene is the science; practical hygiene, the art of preserving health. The immortal Parkes, the founder of modern hygiene, expresses it in this way: Hygiene aims at rendering growth more perfect, decay less rapid, life more vigorous, death more remote. He tells us, that if we had a perfect knowledge of the laws of life and could practically apply this knowledge in a perfect system of hygienic rules, disease would be impossible.

That such a perfect knowledge of these laws is not likely to be obtained, or rather, if obtained, is not likely to be acted upon, we can have no reasonable doubt; the value of health will never be generally appreciated, and the serious losses occasioned by disease seem only too readily effaced from the public mind.

The name hygiene has been adopted from the French, from which language it has been introduced into most modern tongues; it is derived from a Greek word meaning health. Hygeia was the goddess of health.

Writings on health are among the oldest in the world, for the subject has engaged the attention of the profoundest thinkers and the most renowned leaders of men. We have only to point to the elaborate directions of the Mosaic laws for the preservation of health through scrupulons attention to cleanliness, the isolation of the sick, and extreme care in the use of wholesome articles of food and drink. Throughout the whole of their history the Jews enjoyed a remarkable immunity from epidemic diseases, the most of the instances in which such disease occurred being represented as those in which they departed from the law, and doubtless relaxed the wholesome vigilance enjoined by it. In mediæval and modern history they have often, even down to our own time, been spared the ravages of epidemics, when their Christian neighbors were perishing around them. Ignorant superstition often gave rise to the idea that they had poisoned the wells, and they fell victims to the fanaticism of the times. It is highly probable that the periodical cleansing of their dwellings, involved in the thorough search for the leaven which preceded the yearly passover, had a notable influence in preventing that continuous deposition of organic matter, which is no doubt one of the most powerful factors in the production of zymotic disease. On the other hand, the filthy habits of the Christian populations offered a premium to plagues of every kind; for there is no parallel in ancient history to the terrible invasions of disease which from time to time ravaged Europe down to quite recent times.

It is the province of hygiene to seek out and determine the

causes of disease, and to formulate rules for their prevention and removal. It may thus be called also preventive medicine, although this term does not quite express all that must be included. The progress of hygiene, such as it was, rested for many ages upon an empirical basis, and indeed to a large extent this is still the case. Hygiene, then, having for its object the preservation of health, has necessarily an immense scope. In dealing with the subject with regard to animals, we have to take into consideration the air they breathe, the water they drink, the food they are fed on, the stables they occupy, the soils they live on, the harness they wear, the exercise and labor they undergo, their individual care and management, and the prevention and eradication of contagious diseases from which they suffer.

Veterinary sanitation, derived from *sanare*, to heal, is of course embodied in, and forms a part of, the science and art of veterinary hygiene; and it is to this branch of the subject that we desire to direct special attention.

It is a matter of impossibility for the laymen—and by the word laymen we mean the non-professional man—to make a study and familiarize himself with all the agencies which are at work in the production of disease. This implies a life work; and in the investigation of the numerous contagious diseases, a thorough familiarity with the life histories of the various pathogenic, or disease-producing bacteria, such as identification, requirements for existence, methods of reproduction, modes of spread, germicidal agents by which they can be destroyed, the varying degrees of tenacity of life with which they are endowed, etc.; these are matters which have to be left to the scientific investigator in the bacteriological world, to whom we owe so much for the great advancement which has been made in recent years in the control and extermination of the many contagious and death-dealing plagues which have for centuries menaced the lives of both our human and animal populations throughout the civilized world. But it is possible for, and a matter of the greatest importance that, our stock owning public should profit by

the labors of the scientist, and should at least read and familiarize themselves with the most salient points connected with those most contagious and fatal diseases of our domestic animals which periodically decimate our work stock, and bring loss, and often ruin to the rural population of our State. It may not be necessary that the planter or farmer should know the minute differential characteristics which distinguish the germ of charbon from that of consumption under the microscope, or their difference of measurement in microns; but he ought to educate himself up to the point of knowing as thoroughly as possible the most practical and intelligent methods to check the disease and prevent its spread; and this can be done at the expense of a very limited amount of effort. Reliable literature bearing upon the subject abounds, and can be had without money and without price. In fact it is forced into his hands, in many instances, in the form of experiment station bulletins, reports issued by the United States Department of Agriculture, and in many of the most reputable of our agricultural journals. Then why should it be that our people remain in such supreme ignorance on matters of such vital importance as the intelligent handling of some of our most deadly animal diseases, although it may be said of them as it is of the poor, "they are always with us"? The only feasible answer to this question that I can think of is: Our people do not read. As we stated at the outset of our paper, the serious losses occasioned by disease seem only too readily effaced from the public mind. When calamity again comes upon us, we are found still in ignorance of the proper methods of attack and defense, and we throw aside our judgment, and open wide our doors to the inroads of the wily quack, charlatan, or fakir, whose opportunity is our adversity. Gentlemen, I think it may be asserted, and with a great amount of truth, that the losses in animal life which have occurred in this State, and in some years it has been incalculable, has been the result of ignorance. If we take for example that dreaded and fatal disease of live stock, charbon, which is at present doing its deadly work in some of the parishes of our State, and which has been known to our peo-

ple for generations, I suppose, yet there exists even to-day the most profound ignorance as to the true cause of the disease, how it is spread, or the most effectual methods to adopt for its prevention or removal, although it is one of the oldest diseases known to medicine, and the more modern measures for successfully combating it have been in operation in sections of this country, and in those parts of the world in which it is of common occurrence, and which have been known to the medical world in all countries in which scientific medicine is practiced, ever since such measures were discovered.

Gentlemen, when we come to discover the immense importance which the control of such a disease as charbon bears to the live stock interests of this State, there is no education—from a pecuniary standpoint—which our people ought to endeavor to master more than that of sanitation in connection with contagious diseases. So long as we neglect this, and with so few educated graduates of veterinary medicine, with diplomas from the leading colleges of the country to help us out, this disease is bound to claim its victims, and create havoc in its wake. So long as ignorance prevails the fakir and the charlatan are going to get in their work at the expense of the credulous stock-owner. During an outbreak of this disease, we have but to pick up almost any of our daily papers to find in eye-catching head-lines, the liniment, or stock food, or condition powder advertised as a positive preventive, or a sure cure for charbon, while at the same time that part of the scientfic world who are making special investigations along the line of contagious diseases and their control, are as yet ignorant of any agent that will cure it in its most fatal form, and anything that will prevent it except the strictest sanitary measures, including preventive inoculation. We would like to state in this connection, that there are several individuals who are extremely dangerous during an outbreak of such a dangerous and fatal disease as charbon. The first is the one engaged in the proprietary medicine business, who through ignorance of the true nature of the disease, but on the say-so of some one who has administered or applied his medicine in some

ailment which had some semblance to charbon, or perhaps to a genuine case which would have recovered, as many do towards the end of an outbreak from the virus becoming weakened, advertises his drug, or condition powder, or stock food, as a sure cure, and to which the ignorant and unsuspecting stock owner "catches on." The second, is the would be benefactor, who has been similarly deceived into the belief that he has hit upon a specific which has never failed with him, recommends it to his neighbor in adversity. And the third, is the professional fakir, who neither knows nor cares what the disease is so long as he can rake in the shekels from his credulous and confidence reposing victim.

The first of these is to be excused; the second to be commended, but the third should be criminally prosecuted. The great danger lies not in any harm that may accrue from the remedy (?) *per se*, but in the liability of the disease to spread, through the absence of any virtue—so far as this disease is concerned—in the quack medicine, and the total neglect of any sanitary measures whatever, which are in reality the only rational means by which to control the malady.

How, then, is the stock-owner to release himself from the thraldom of this ignorance and empiricism? He must avail of every means of educating himself along such lines; have recourse to the most reliable and authentic literature on the subject, which in this advanced age is quite voluminous; and, I hope I may be pardoned for this suggestion, give more encouragement to the educated veterinarian to locate in his midst, to render the assistance of valuable experience gained as the result of years of hard and patient study. Then such a disease as charbon would soon be shorn of its terrors, and then would the errors of the "empiric" who served his day and generation as best he could, according to his light, be relegated to the archives of a past age, and the light of reason and intelligence beam forth to obliterate the dark doings of empiricism, superstition and doubt.

So far, then, we have said something about what has been

done; what is being done, and what should be done. Let us now consider briefly the most practical and rational sanitary measures to be adopted in an outbreak of this fatal disease, charbon, and I specially mention this malady on account of its prevalence in the State, and the loss which is sustained through its ravages.

In the first place, charbon, or anthrax, is produced by its own specific germ, and without the presence of that particular germ there can be no charbon. There can be, and in fact are, several ways by which the disease can be introduced into the living body, but the germ must be there.

Before proceeding further, let us investigate this little life-destroying organism. His technical name is "bacillus anthracis," which simply means the bacillus of anthrax. He belongs to that variety of bacteria known as bacilli or rods, that is, his length exceeds his breadth. He is classed as an aerobe, for the reason that oxygen is absolutely essential to his existence or being. This last is a very important fact from a sanitary standpoint. When a victim of charbon ceases to breathe, the food supply of the bacillus is cut off, and as a consequence he will gradually degenerate and die, provided no atmospheric air, which of course contains oxygen, gets to him. And it has been found impossible to identify one of these germs in the blood of a charbonous carcass 24 to 36 hours after death. This important fact, right here, points to another very important fact; and it is this: If that carcass is burnt, without any blood or other body discharges being allowed to escape—for it is valuable to know that all discharges issuing from a charbonous cadaver are infected—the last vestige of the contagion from that individual carcass will have been destroyed. But on the other hand, if any of these discharges are permitted to come in contact with the oxygen of the air, being teeming with this organismal life, the latter are revivified from spores—which are the seeds of the future bacillus—contaminate the surrounding vegetation, which is in turn eaten by stock, or they are washed by surface water and find their way into streams, canals, bayous, etc., and may be carried

to distant pastures, and in this way the disease is spread and crops up in the most unexpected localities, in the most unaccountable manner without any *apparent* cause. A knowledge of this fact alone might be the means of preventing the spread of the disease in *many* instances. The spore is the most difficult stage of the germ to destroy, and is said to be able to withstand our ordinary climatic influences for years, and is therefore capable of permanently infecting certain sections of the country, such as our own, where conditions seem to be favorable to its development.

With regard to the ways by which the contagion gains access to the circulation of the living animal, we have already alluded to one, viz.: by ingestion or swallowing contaminated food or water. This is known as the intestinal mode of infection, and produces death more rapidly than any of the other modes, for the reason that a greater amount of the infective material is taken into the system. It is said that the digestive juices of the stomach are capable of destroying these organisms, but it is evident that a great many of them do not come in contact with the gastric juice, and therefore escape its destructive action.

The second mode of infection is what is known as the external or cutaneous, and here is where flies, especially the blood-sucking varieties, when in large numbers, play an important part in the spread of charbon. There is an erroneous impression that there is a special charbon fly. This is not so. Any fly may be a charbon fly, so-called, when the disease is in existence, because after sucking the blood of a charbonous animal—which contains myriads of the germs—it simply transmits the disease to the previously healthy animal by inoculation. Death from this mode is not generally so rapid, because the amount of infection is not so great, and the multiplication of the organisms necessarily not so extensive until the later stages, when the whole system is engorged with them.

The third mode is by way of the respiratory apparatus, inhaling the spores in a dried or desiccated condition, and mixed with the atmospheric air. This is the most uncommon method,

and rarely takes place in the lower animals. But in human beings whose occupation leads them to sorting wool, or teezing hair, of animals that have died of the disease, the germs are taken in through the delicate mucous-membrane of the lungs, and in this way gain the general circulation. In this case it is known as "wool-sorters' disease," but of course it is charbon, although it gets its name in this instance from the occupation which renders people in this business so susceptible. Now, although we referred to flies as transmitters of the disease, there are other media through which the external form may be produced. For instance, if a piece of harness soiled with the blood or discharge from the wound of a charbonous animal, is brought in contact with a wound on a healthy one, inoculation may easily take place. Infected stable utensils may also be a ready means of inoculation. An animal with a wounded skin surface, coming in contact with infected grass at pasture, or infected litter in the stable, when lying down to rest, may have the virus transmitted. So that it will be seen how easy and how simple it is to convey the disease.

It may be stated that charbon is not transmitted directly from one animal to another, except in the event of a charbonous wound and a healthy one being brought into actual contact. It is most frequently communicated in an indirect manner, in the ways we have just stated.

No doubt many of you have heard of preventive inoculation in charbon, and some of you may have used it. It will no doubt be interesting to you all to know something about anthrax vaccine, as it is called. The reason that the virulence of charbon cultures is so stable, is due to the presence of the spores which are so tenacious, and little subject to change. When it is desired to attenuate or weaken these cultures it is necessary to begin by preventing the formation of spores. Pasteur succeeded in this by cultivating the charbon bacilli at the temperature of 42 to 43 degrees Centigrade, in the presence of oxygen, when multiplication of the bacilli still continues, but spores are no longer formed. The bacterium which has become asporogenous

at the above named temperature then loses its virulent properties, and finally loses all its vitality. The preparation of the first or weakest lymph requires twenty-four days' exposure; that of the second twelve days; and they are inoculated at an interval of ten to fourteen days. The vaccine then, is the actual virus attenuated or weakened until it has been deprived of its virulence, by exposure to the temperature above stated, in the presence of oxygen. The administration of this vaccine seems to set up a mild form of fever, which in the majority of cases is almost totally unrecognizable, and in so doing confers immunity or non-susceptibility, which lasts for a period of about twelve months.

The main fact to be remembered in the sanitation of this disease, is, that the animal, its discharges, and all its surroundings are, or at all events, ought to be considered, infected. If we bear this strictly in mind, we are more than likely to be guided in the prosecution of the proper sanitary measures by common sense and intelligence.

In the first place, whenever the disease breaks out, the affected animals should be allowed to remain where they are, and, where at all practicable, the healthy ones should be removed to healthy quarters. The reason for this is obvious; we desire to circumscribe the infected area and quarantine it, so to speak. When we remove the sick animals we simply spread the disease by making new centres of the contagion. We say, then, that the diseased animals should be quarantined where they are first found to be affected, if at all possible. All their surroundings, such as litter, excrement, etc., should be burnt. Should the animal succumb to the disease, the carcass should be burnt; and if it is necessary to have it hauled off for that purpose, it should not be dragged along the ground, as is often done, allowing the blood from the abraded skin to contaminate the ground, but the body should be placed on a rough slide of some kind, made impervious, so that no fluid can escape from the cadaver, and when done with, the slide itself can be cremated also. Burying is not so satisfactory, for the reason that some of the infected discharges

may remain round the neighborhood of the grave and cause further trouble, which can be absolutely avoided by the heat produced in the process of cremation.

Those who attend on the sick animals should not be allowed in the neighborhood of the healthy stock, without, at least, making a complete change of clothing. Infection can be, and no doubt often is, carried through neglect of this sanitary observance.

All the surroundings of the diseased animal should be subjected to the strictest disinfection. In fact there is no sanitary detail, however frivolous it may appear, that should not receive the greatest attention if we expect to make a complete removal of the disease.

There is another point with regard to the removal of charbonous carcasses, which demands the most careful attention. We allude to the too common custom of hauling them out to some fence corner and there leaving them exposed. This is one of, if not the surest means of spreading the disease far and wide all over the country. How, it might be inquired, is this to be accounted for? In the simplest manner possible! The body being newly dead, is a mass of living charbon organisms. Gases arising as the product of decomposition, force blood and other fluids through the natural openings on to the ground, which becomes infected with spores, the grass or herbage also shares in the infection, and when grazed over by other animals, they in turn contract the disease. Dogs, foxes, or hogs, devour the charbonous flesh; they also become diseased and become new centres of the malady. The buzzard and the carrion crow, although it is said that birds of prey are to some extent immune from contagious disease, trample over the charbonous blood and offal, while devouring the flesh, and may carry the contagion on their feet all over the country, infecting the pastures as they tread. Rains may wash the diseased discharges from the carelessly exposed carcass into some running water which may be carried for miles, infecting the animals that drink it, or pastures which it may overflow, and communicate the disease to stock

that graze over these pastures. Knowing these facts, then, and considering the lack of information which prevails amongst our people as to the true nature of this disease and the empirical methods which are adopted in its treatment, is it any wonder that charbon spreads? The wonder is that it does not spread more.

The subject is one of vital importance, and every effort should be put forth by citizens to minimize the ravages of this disease to the utmost extent. This can only be done by a well organized system of strict sanitary regulations. The matter is one which affects, not only the individual, but the community, the parish and the State. Control of the disease should be in the hands of the police juries, or Boards of Health, and every right minded citizen should render all the assistance within his power. Those owners who are sceptical—and some are always to be found in a community—should be brought into line and made to conform to the powers that be. For, the scepticism or unreasonableness of one individual, owning an animal affected with charbon, may be the means of counteracting all the good that would otherwise be accomplished.

We have no hesitation in saying that, if our stock-owning public would take the trouble to familiarize themselves with the true nature of the contagious diseases that are so destructive to their live stock interests, and the rational sanitary measures for their prevention and extermination, the time would soon arrive when the appearance of these fatal animal ailments, some of which, like charbon, are transmissible to human beings, would be looked upon, not with the dread which at present accompanies them, but they would be met with the composure which results from an exact and thorough knowledge of the proper methods wherewith to combat them satisfactorily. Then would the "sure preventive and cure" be found, not in the nostrum of the empiric or the charlatan, but in the knowledge and rational plicatioı of the principles of modern sanitary science.

ARE you still trying to increase the REVIEW'S circulation?

MUNICIPAL VS. STATE CONTROL OF TUBERCULOSIS.

By Edwin B. Ackerman, D. V. S., Brooklyn, New York City.

Read at the December meeting of the Veterinary Medical Association of New York County.

In opening this discussion it will be necessary for me to quote the State laws and municipal ordinances covering this question.

Chapter 661, laws of 1893, was made under an appropriation to kill tubercular cows, but without appraisal of cattle. This was amended by Chapter 664, laws 1894. Under these laws the following regulations are laid down in Sections 60 to 65 of the Public Health Laws, for all counties in the State of New York.

TUBERCULOSIS AND GLANDERS.

Section 60. Jurisdiction of State Board.
" 61. Suppression of tuberculosis.
" 62. Destruction of domestic animals affected with tuberculosis or glanders.
" 63. Compensation to owners.
" 64. Penalties.
" 65. Special committee of State Board.

Section 60.—*Jurisdiction of State Board.*—The State Board of Health shall investigate concerning the existence and cause of tuberculosis in cattle and the danger to the public health therefrom, and shall use all reasonable means for averting and suppressing such disease. Such Board may cause all proper information in its possession respecting tuberculosis in cattle to be sent to the local Board of Health nearest to the cattle affected, and may add thereto such useful suggestions as to the removal of the sources of danger therefrom or as to the destruction of such cattle, as to such board may deem proper. The local health authorities shall supply to the State Board of Health like information and suggestions respecting the existence of tuberculosis in cattle.

Section 61.—*Suppression of Tuberculosis.*—Whenever tuberculosis shall be found among cattle in any part of the State, the State Board of Health shall take measures to suppress such disease and prevent the spread thereof, and may order all persons to take such precautions against the spread of such disease as

it may deem necessary or expedient. Such board may call upon any peace officer in the neighborhood of such disease to enforce the orders of such board respecting such disease, and to observe and carry out the rules, orders and instructions which he may receive therefrom. Such board may prescribe regulations for the destruction of cattle affected with tuberculosis, for the proper dispensation of their hides and carcasses and of all objects which might convey the infection or contagion, and for the disinfection of premises, buildings, boats, cars, stables and other objects or places from or by which such infection or contagion might be communicated. The State Board of Health may employ such medical aid, veterinary practitioners and other persons as it may deem necessary, to assist in the inspection, isolation, destruction or disposition of cattle affected with tuberculosis, prescribe rules and regulations for such inspectors and employés, and fix their compensation.

Section 62.—*Destruction of Domestic Animals Affected with Tuberculosis or Glanders.*—Whenever the State Board of Health may deem it necessary for the prevention of the spread of tuberculosis in cattle, such board may cause to be killed, any animal affected thereby, or which, by contact with diseased animals or by exposure or infection or contagion therefrom, such board may determine is liable to contract or communicate such disease; but no such diseased animal shall be so killed on account of tuberculosis unless first examined by a veterinary practitioner in the employ of the State Board of Health, and, if desired by the owner, appraised as hereinafter provided. A local Board of Health shall, pursuant to rules and regulations prescribed by the State Board of Health, cause to be killed, every horse affected with glanders, found within its jurisdiction, but no horse shall be so killed on account of glanders until the value thereof be appraised as hereinafter provided.

Section 63.—*Compensation to Owners.*—To determine the value of such animal, the comptroller shall designate some competent, disinterested person, residing within the judicial district in which such animal may be, to act as appraiser, with an appraiser to be selected by the owner of such animal, who shall promptly fix a time when they shall view such animal and shall proceed to appraise the value thereof. In case of a disagreement between the two appraisers, the third appraiser shall be selected by them, and the estimate of the value of either two of them shall be final. The animal shall be appraised at its sound value, provided, however, no single unregistered animal

shall be appraised at more than sixty dollars. Each appraisal shall be in writing, signed by the appraiser or appraisers agreeing, and shall be delivered by them, if the animal be suspected of tuberculosis, to the veterinary practitioner in charge of such animal, and if the animal be a horse affected with glanders, to the Secretary of the local Board of Health having jurisdiction thereof. Upon the delivery of such appraisal, such animal shall be killed, as hereinbefore provided; and if it be killed on account of tuberculosis, the veterinary practitioner in charge thereof shall forthwith make a post-mortem examination of the animal, and if it shall be discovered upon such post-mortem examination that the animal was affected by tuberculosis, the owner of the animal shall be entitled to receive one-half of the appraised value; provided, however, that not more than sixty dollars shall be paid for a diseased registered animal and not more than twenty-five dollars shall be paid for a diseased unregistered animal, but if such examination of the animal killed on account of tuberculosis discloses that the animal was not affected with tuberculosis, the owner shall be entitled to receive the full appraised value. The written appraisal of the value of an animal killed on account of tuberculosis, and a written statement of the result of the post-mortem examination thereof, signed by the veterinary practitioner in charge thereof, shall forthwith be transmitted by such veterinary practitioner to the Secretary of the State Board of Health, who shall file the same in his office. The Secretary of the local Board of Health having jurisdiction in the case of a horse affected with glanders shall, in case such horse is killed, upon receipt of the written appraisal, signed by the appraiser or appraisers, as hereinbefore provided, forthwith make and sign a certificate of such fact, and transmit such appraisal and certificate to the Secretary of the State Board of Health, who shall file the same in his office. Upon receipt from the veterinary practitioner, in the case of an animal killed on account of tuberculosis, or from the Secretary of the local Board of Health having jurisdiction in the case of a horse killed on account of glanders, such Secretary of the State Board of Health shall forthwith make a written certificate, signed by him, setting forth the name and post-office address of the owner of the animal killed, and the amount which such owner is entitled to be paid on account of the killing of such animal, and shall forthwith transmit such certificate to the Comptroller, who shall issue his warrant upon the Treasurer for the payment to such person of the amount so certified, and shall

mail the same to such person at his post-office address as it appears by such certificate. No compensation shall be allowed to any person who shall have willfully concealed the existence of tuberculosis or glanders among his animals, or upon his premises, or who, directly or indirectly, by act or willful neglect, shall have contributed to the spread of such diseases or either of them, and no compensation shall be made under the provisions of this act to any owner, for animals killed unless the animal or animals killed shall have been actually owned and possessed by the owner thereof within this State for a period of three months prior to such condemnation. The appraisers to be appointed as aforesaid, by the Comptroller, shall hold office during the pleasure of the State Board of Health. Each appraiser appointed shall receive as compensation the sum of five dollars per day for each day actually employed, and shall also be paid his actual necessary disbursements, but no claim for services or disbursements shall be allowed or paid unless accompanied by a verified detailed statement thereof.

Section 64.—*Penalties.*—Any person refusing to obey or violating an order, rule or regulation of the State Board of Health respecting tuberculosis in cattle, adopted pursuant to law, shall be liable to a penalty of one hundred dollars, recoverable by the State Board of Health, and applicable to the payment of the expenses of such board in carrying out the provisions in this article.

Section 65. *Special Committee of State Board.*—The State Board of Health may appoint two of its members as a committee, whose particular duties shall be to carry out the provisions of the Public Health Law, relating to tuberculosis in cattle, and such members so appointed shall be entitled to receive a salary of two hundred and fifty dollars per month and any necessary expenses, and they shall hold office for one year. Such committee shall keep a complete record of all work done and submit monthly reports thereof to the State Board of Health.

THE SANITARY ORDINANCES OF THE CITY OF NEW YORK.

Section 31 of the Sanitary Regulations reads as follows: That no cattle shall be killed for human food while in a diseased condition, and all such diseased cattle in the city of New York and the place where found, and their disease shall be at once reported to the Department of Health by the owner or custodian thereof, that the proper order may be made relative thereto, or for the removal thereof from the city.

Section 120. That no diseased cattle or other animals, nor any that have been exposed to any disease that is contagious among such animals shall be brought into the city of New York.

Section 121. That no animal having glanders and farcy, or any contagious disease, or that shall die thereof, shall be removed, disposed of, or exposed in any street or public place, in said city without a written permit from said Board of Health and then only in accordance with the terms of such permit.

Section 185. "That every veterinary surgeon who is called to examine or professionally attend any animal within the city of New York having glanders or farcy or any contagious disease, shall within 24 hours thereafter report in writing to the Board of Health of such city the following facts—viz.: 1st, A statement of the location of such diseased animal; 2d, the name and address of the owner thereof; 3d, the type and character of the disease." This compels the report on all cases of tuberculosis.

Section 59. That no person shall sell, deliver, or offer or have for sale or keep for use, or bring or send to said city any skimmed, watered or adulterated milk, or milk known as "swill milk" or milk from sick or diseased cows.

Sections 75, 76, 77 and 78. *Driving and Leading Cattle through Streets.*— Prohibits the driving or leading of cattle through streets, except under certain conditions (as one person for each animal, animal properly marked for identification for owner and destination by sign or symbol, which must be filed in Department of Health when applying for permit, and no animal to be driven without a permit).

Now, to review the law. By State laws and regulations all parts of the State should and would receive equal inspection and care, and all dairymen would receive proper compensation for their diseased animals; this would be fair and just and the people would be protected at their own expense for a pure, healthy article of food; the farmer would get rid of his diseased cows at a small proportion of the loss, and he would have healthy herds with which to put his produce upon the market. This to be done fair would require an appropriation large enough to carry on the work in all counties, and not in a few favored counties as heretofore.

Under tubercular inspection by city ordinances, as carried

on to-day, everything is done by coercion. A dairyman is notified that on such a day his herd will be tested with tuberculin. If he resists or refuses to have his cows thus tested he is arrested on the charge of keeping cows without a permit, and his stable is immediately quarantined, thus shutting up his business.

You will notice that Section 120 reads that no diseased cattle shall be brought into the city of New York. Thus, if the stable door was kept locked, the dairymen of our city would be protected and not get diseased cows in their herds. Now, then, as the stable door is open and cows with tuberculosis are allowed in, our dairymen get these cows, disease and all, in their dairies. The Health Department then comes along and confiscates them on a tuberculin test under their unlimited power and authority. This is all right as far as it goes, but, under Section 31, if they have a private test made, they or their attending veterinarian are required to report same to the Health Department, and thus they would lose them. If, on the other hand, such cases are not reported and the owner tries to dispose of same, he is confronted by Sections 75 to 78, which prohibits him from leading or driving cows through the streets without a permit from the Health Department. He is thus allowed to buy cows with the disease, but is hampered from disposing of them to any advantage, no matter how slightly the animal is affected.

His loss becomes total, because when the Health Department condemns a cow they take the whole carcass, unless the owner will sign a release, in which case he can have the hides. While the regulations of our Bureau of Animal Industry and the conclusions of our National Veterinary Association are that in localized tuberculosis the meat may be used for food, while generalized tuberculosis should be condemned, and as a good proportion of the cows condemned under the tuberculin test have only a small localized lesion, their carcasses, skins, etc., could be utilized to the owners' advantage.

Of course this test is made largely in dairies for the protection of the milk supply. But under our municipal ordinances

this inspection is confined to the dairies located in the city limits, and only protects the milk supplied by them, and as the city supply from local dairies is less than one-twentieth of the entire quantity used, the protection is a failure to the competitive disadvantage of our local dairies, and to the advantage of suburban or country milkmen, thus making the competition unfair. In other words, we rid the local dairies of tubercular cows, but we do not make our general milk supply any better protected. It, therefore, becomes self-evident and more fitting that this disease should be controlled by the State laws and regulations with the aid and inspection of the various local Health Departments in this way.

To-day I understand that animals coming in this State are tested with the tuberculin test, and many of those that fail to react are shipped to Pennsylvania and Massachusetts because they will not receive animals except they will pass the test, while those cattle they do not want, and those that are not tested at all, are sold in this State. Thus the cow stable door is wide open. So, if the State began at Buffalo and kept tubercular cows out, it would be an excellent start. Then by a district systematic inspection of rural districts our out-of-town dairies supplying milk to our large cities would be controlled; that would be two forms of inspection. Then, as an extra precaution, our cities should establish a quarantine station for all cows shipped into the city, and all cows with State certificate or tag could either be tested or passed, while State cows shipped into the cities could be detained for a test. This would shut the door against the disease all along the line, and then to lock them the city could make the local inspection or test in our city dairies, and there catch anything that had escaped detection or acquired the disease in the dairies, and at the same time our local Health Department should be given the privilege of making inspection on State authority or with a State inspector upon any herd of cattle whose milk was sent to our city.

To conclude, all district inspectors, quarantine inspectors, and local departments of health could report all cases of tuber-

culosis to the State authorities, whether that be the State Board of Health, the Department of Agriculture, Bureau of Animal Industry, Board of Tuberculosis Commissions, or a State Veterinarian, for appraisal, so that owners might be indemnified up to a certain value, for example, as fixed by the present law.

It remains with this body, our State Veterinary Medical Association, the Dairyman's Association of all the counties of Greater New York and our city Department of Health, to use every means in their power, individually and collectively, to see to it that some proper measure is prepared, or law passed, by our next Legislature to rid our herds of tuberculous cows on an equal basis with our rural dairymen in competition with our local dairies, and to the advantage of all our milk, so that we may get a healthy food.

At some future time, gentlemen, I will have something to say on "Hygienic Marketing of Milk."

CALCULI.

By B. F. Kaupp, D. V. S., Inspector B. A. I., Kansas City, Mo.

A Paper read before the Missouri Valley Veterinary Medical Association, Oct. 5, 1898.

I choose for my subject this evening "Calculi," for the reason that we see so many upon post-mortem and find little literature on the subject, and I hope this short discourse will bring out a lengthy discussion.

Calculi are concretions in any part of the animal body, most frequently occurring in organs acting as reservoirs and in the excretory canals, and occurring in animals of all ages. They are met with in the biliary ducts, gall bladder, pancreas, salivary ducts, urinary passages (usually the kidney, bladder and prepuce), and in the digestive tract. They may be owing to deposition of substances from fluid passing along the duct or a product of nutritive irritation.

The information I have collected from the bladder men at the large abattoirs, corroborates the information gained from the

text-books, that urinary calculi are more common in the winter than at any other time of the year, as at this season stock are on dry feed and sometimes have insufficient water. A great or abnormal drain of water from the system, by any other channel than the kidney, lessens the amount of water in the urine and predisposes the production of calculi; as in cases of profuse diarrhœa or in excessive secretion of milk, etc. While the quantity of water in these cases is diminished, the waste of the tissues goes on as before, and if the waste matter is passed out through the kidneys it must necessarily be in a more concentrated form. The kind of water drank by the animal may also be a factor in producing calculi. The concentrated condition of the urine which predisposes these deposits is favored by the quantity of lime salts that may be present in the water taken in. Feed which contains large quantities of phosphate of lime and other mineral substances entering into the composition of calculi, favor the formation of these stones. It is a noted fact that calculi are common among the different animals on limestone soils. Again, when little water is taken into the body and a large amount is expelled by the skin and through the respiratory tract and otherwise, the urine becomes small in quantity, but having to carry out its share of waste material from the tissues and the tissue-forming food, it becomes so charged with solids that it is ready to deposit them on the slightest disturbance; if a little water of such concentrated urine is reabsorbed at any point in the urinary passage, the remainder is no longer able to hold all of the solids in solution and they are at once precipitated, forming a gravel or the commencement of a calculi. Urinary calculi may be found either in the uriniferous tubes, pelvis of the kidney, ureters, the bladder, the urethral canal or in the prepuce. It is said that if a foreign body be introduced into the kidney or bladder that a calculus will form around it, using it as a nucleus; the explanation is that "the foreign body carries with it bacteria which act as a ferment upon the urine and mucus, in addition to the mechanical injury caused by its presence, and if the substance passes through the body it carries

with it blood and lymph derived from the wounded tissues." Mr. Boerhaave experimented by introducing a small round pebble into the bladder of a dog. The wound healed perfectly. A few months later the dog was killed and there was found a calculus of considerable size, the pebble forming the nucleus. These calculi are of different sizes and shapes, as you will see by the specimens I exhibit to-night. They are composed of carbonate of magnesia, carbonate, phosphate and oxalate of lime and the soluble forms of silica, which usually enters the urine as silicate of potash or soda, and sometimes traces of iron and other mineral substances. Urinary calculi are more frequent in the male than in the female, owing to the fact that in this sex the urethral passage is much smaller and longer than in the female.

A small calculus may pass from the kidney to the bladder, where it may form the nucleus of a cystic calculus; or a small stone may pass from the bladder and become lodged in the urethral passage and form the nucleus of a urethral calculus.

Urethral calculi are more frequent in the male sex of cattle and sheep, owing to the S shaped curvature of the penis. The calculus most frequently lodges about the posterior border of the pelvis just above the S shaped curvature of the penis.

Prepucial calculus in the horse of calcareous formation is rare. This term has sometimes been applied to the sebaceous matter that so commonly accumulates in the blind pouch at the end of the penis, which substance is soft and cheesy-like. Prepucial calculi in cattle may form on the hairs hanging in a tuft from the prepuce. The calculi are usually phosphatic in composition. The slow expulsion of the urine favors their formation. Prepucial calculi in swine are frequently found. Some of the calculi have nearly a smooth surface, while others present a crystalized appearance and are very irregular in shape.

Dr. Griemer, in the *Veterinary Journal* in 1896, reports a case of urethral calculus in a horse, calculus weighing 6¼ ounces.

Dr. Farmer, in the VETERINARY REVIEW in 1895, reports a cystic calculus in an 18-months-old colt; the calculus measured 14 inches in circumference and weighed 27 ounces.

Dr. Smith, in the VETERINARY REVIEW of October, 1895, reports a case in a mule, the calculus measuring two inches in length and three-fourths of an inch in diameter, very rough and of cylinder-like appearance.

Dr. Britton, in the VETERINARY REVIEW of the same date, reports a case in a 13-year-old gelding, the calculus weighing 6 ounces.

Dr. Nesbitt, in the VETERINARY REVIEW, in 1893, reports a case of cystic calculi in the bitch, the calculi numbered 194, varying in size from a pin's head to a buckshot.

Dr. Peabody, in the VETERINARY REVIEW, in 1890, reports a case in a dog, the patient passing 29 small calculi.

Mr. Blaine reports a case in a Newfoundland dog, in which there were 40 or 50 calculi in the bladder.

I have observed three cases of renal calculi; one in cattle and two in swine.

Case I.—A steer; weight 1400 pounds; color, red; age, four years. The kidney weighed 3½ pounds; an abnormal deposit of fat surrounded it, which weighed about 50 pounds. Several calculi were found. They were irregular in shape, the largest being the size of a pea.

Case II.—A barrow, weighing 400 pounds, color black, and in good health; in the left kidney 40 calculi were observed in the uriniferous tubes, which were greatly distended. The calculi were of irregular shape, and varied in size from a pin's head to a large-sized wheat grain.

Case III.—A sow, weighing 300 pounds, and in a healthy condition; one calculus, which measured three-fourths of an inch in its greatest diameter and one-fourth of an inch in thickness, was found in the pelvis of the kidney.

Calculi in the pancreas and pancreatic duct have been reported. They are usually milk-white in color and small in size.

Inspissated bile is occasionally found in the gall bladder of the hog, but is not common in cattle and sheep. I have observed several cases in the gall bladder of swine, in some of them the mass completely filled the gall bladder and was waxy

in consistency, resembling beeswax and of a dark green color.

Biliary calculi are concretions formed principally of cholesterin, together with coloring matter from the bile, and are most frequently found in the gall bladder, and sometimes in the bile ducts. The concretions are said to be rare in horses. They are commonly found in cattle, in which I have counted as high as fourteen stones in one bile duct. They are also of frequent occurrence in swine, and are said to be occasionally found in dogs.

The calculi of the stomach and intestines of horses usually occur in those owned by millers, where the dust of the mill, containing grit and other substances, is swept up and fed to them. A piece of mill stone or other substance usually forms the nucleus around which earthy and other matter collects. Some are soft, consisting principally of animal and vegetable matter, others consist of animal and mineral substances, while a few are composed of mineral substances alone. They vary in weight from a few ounces to more than twenty pounds. Calculi in the stomach of dogs are rare, but when found usually consist of phosphate of lime and magnesia intermixed with organic matter and have a smooth surface. In the stomach of cattle we frequently find an interesting calculus of hair formation, commonly called "hair-balls," or technically known as ægagropilus; these hair-balls are most commonly found in the autumn and winter. The roughened condition of the tongue of cattle causes a considerable removal of hair while licking themselves or other cattle, which is swallowed, and by the churning motion of the stomach the hair, which is intermixed with food particles and mucus, moulds into a rounded form. After a while the outer surface becomes polished and smooth. They are brown or black in color, and vary in size from a walnut to several pounds. Calculi in the intestines of cattle are neither large, solid, nor frequent, and are usually found in the large intestines.

Salivary calculi are probably the most common in the horse. They may form either in the parotid, sublingual or submax-

illary ducts, and are usually caused by a foreign body working up into the duct, which forms the nucleus, such as hay, corn grain or oat grain, etc. Around the nucleus gather the salts of the saliva, forming rounded or elongated calculi, which may block the duct. There may be several calculi in one duct.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

IMMOBILIZATION IN CASES OF OPEN JOINTS.

By W. F. Derr, V. S., Wooster, Ohio.

In the summer of 1896 a bay horse, six years old, turned out to pasture, got into a barbed-wire fence in such a way that the extensor pedis and metacarpus of the left knee were severed and the joint laid open over its anterior aspect to the extent of three inches.

At the time of my seeing the case it was about ten hours after the accident. He was standing in the stable with limb flexed, so that you could see into the carpal articulation.

A blacksmith being close by, I took the measure of the foot, had a shoe made to extend well back from the heels with holes in, and a brace made to fit the shoe and extend up leg, with a clasp to fit around the arm below the elbow joint. In the meantime, while this was being done, I kept a continuous spray over the wound of carbolic acid and tincture of iodine, one of each to 200 of water, which was kept up for quite a while, dusted the wound with boracic acid and iodoform, and closed with quilled suture. I then applied bandages, from the ankle well up towards the elbow, laying plenty of absorbent cotton over the lacerated parts, fastened the forked brace to the foot and leg, held in place by bandages, and placed the animal in slings, also at the same time I put it under constitutional treatment; had a man stay with the case the first night for fear of trouble with the immovable condition of the limb, also to watch it while put in slings.

Next day the animal was doing well. I thought it best not to disturb it, and therefore left the case alone for two days, at which time there was considerable serum with coagulated synovia making its way through the dressings.

Before taking off the brace and dressings, I prepared myself

with a bucket of carbolic and iodine solution, and as soon as the wound was exposed began to spray the parts thoroughly. The wound was looking fairly well, with the exception of a few places, where it was sloughing some of the lacerated tissues. I closed it again in the same manner as before, left it again for two days, when I repeated the same dressings, the animal being kept in slings for a period of twelve days, when I had him removed from the slings, the wound having granulated enough to close the joint, so as to let the patient lie down.

He made a complete recovery in four weeks, with a slight inability to extend the leg, leaving but a small cicatrix that a few weeks before looked very unfavorable.

RUMENOTOMY—RECOVERY.

By C. H. PEABODY, D. V. S., Charlton City, Mass.

Last August I was called upon by a farmer to see a cow. On my way to the farm I obtained the following history: "The cow is six years old; she calved last June and did all right. Night before last she got into the grain-bin and just stuffed herself with feed, and I think the pesky thing will burst if it is not got out of her soon."

Arriving at the farm, I found a large Ayrshire cow. Her abdomen was distended and hard. By pressing with the hand an indentation was left. She stood with her head extended, tongue protruding, and the saliva was running from her mouth. Respiration was labored and pulse quite thready. There was a well defined, bluish-purple line along the gum at the roots of the teeth. Prognosis was unfavorable.

I placed the cow so as to get at her right side, clipping the hair for a space of about twelve inches in the middle of the triangle formed by the ribs, the transverse processes of the lumbar vertebræ, and the hip-bone.

After washing the parts thoroughly with a solution of carbolic acid, I made an incision about eight inches long through the skin, then through the muscular tissue and the peritoneum. After stopping all hæmorrhage, I then made an incision into the rumen. I brought the edges well out of the incision through the muscular tissues and had them held there by two assistants. I then removed ten pecks of hard, dry meal, oats, barley, corn, and bran.

Having in the meantime found out that the cow had received one quart of linseed oil, one pound of Epsom salts, a quart of soft soap and a yeast cake dissolved in two quarts of water, I

placed in the stomach tincture of opium, ℥ ii, tincture of nux vomica, ℥ i, in a pint of whiskey and two quarts of milk.

For sutures for the rumen and peritoneum, I used violin strings soaked in carbolic solution. I closed the incision with what I call the herring-bone stitch. It is a stitch that ties a knot as it is taken, and cannot slip. The muscular tissues and skin I drew together with heavy tape-quill sutures. I dressed it with salicylic ointment, and placed over the incision a pad of oakum saturated with a solution of corrosive sublimate, 1–1000, and held in place by a many-tailed bandage passing around the body.

I saw the animal the next day. Her temperature was 103° F., and her pulse was 60. She drank a little gruel. Fæces rather hard.

The next day her temperature was 102°, pulse 50; fæces soft. She drank a pint of gruel and appeared bright. In forty-eight hours I saw her again. The wound looked well, and after thoroughly cleaning the same, I dressed it as before. I saw her again in three days. She ate a little soft food, drank freely, and gave a little milk. I dressed the wound as before, and removed one suture. Six days passed before I saw her again. In the meantime I had the parts kept well wet with the solution of corrosive sublimate. On my next visit I removed all the sutures and filled what was left of the incision with a preparation composed of iodoform, camphor and Fuller's earth. I left directions that some of this be dusted in three or four times a day, as the occasion required.

In four weeks from the time of operation, the incision was closed and the cow was apparently well.

INTERNAL HÆMORRHAGE.

By HERBERT S. PERLEY, D. V. S. Ottawa, Ont.

The subject, a cross-bred fox and bull terrier, two years old, weighing twenty-seven pounds, was brought to infirmary bleeding from the mouth. The hæmorrhage was not extensive and owner stated the dog had been bleeding for 24 hours. The mouth was thoroughly cleansed with cold water and an examination made for broken teeth or lacerations of tongue or cheeks. A small laceration of the right superior lip was found, from which blood was oozing. As sufficient blood was coming from this to account for what dropped from the mouth, no further examination was made. A tampon of absorbent cotton soaked in tinct. ferri perchlor. was applied, which had the desired effect. The

animal was taken home, but was returned again in a couple of hours, again bleeding. On examination it was found that the blood was coming from the laceration, and also oozing from the edges of the lips, floor and roof of mouth, end of nose, and from several places on external surface of lips and cheeks. No cause was apparent for any, save the one laceration.

This general capillary hæmorrhage was treated with cold, tincture iron, pulv. iron, tannic acid, alum, flour and the actual cautery.

After trying the above agents for a few hours and not being able to arrest the flow of blood, I was at the end of my resources. The animal had grown rapidly weaker; too weak in fact to be accounted for by the loss of blood from the mouth. Legs and ears were cold, and animal hardly able to stand alone.

Upon taking temperature per rectum, it was found to be 99.1° F., and the thermometer was covered with blood. This indicated internal hæmorrhage, and I at once gave a dose of acetate lead, tinct. opii and tinct. ergot. In about thirty seconds animal vomited about four ounces of blood. I tried several times to give internal styptics, but vomition was invariably the result. The animal lingered for several hours and then died.

Post-mortem revealed a large aneurism of the mesenteric artery, and an inflamed condition of about three feet of small intestines, from which there had evidently been hæmorrhage. The entire intestinal tract was almost free from ingesta and filled with blood. This accounted for death, but did not explain the capillary hæmorrhage of the mouth and lips, or why it could not be arrested.

A SUBLINGUAL TUMOR.

By Francis Abele, V. S., Quincy, Mass.

In my dog practice, the commonest call is to come right away to see a dog that has been poisoned. The real fact, however, I seldom see. The usual fact is either some bowel disorder, oftenest constipation, or else some form of distemper coming on, most commonly the congestive chill.

One of these "poisoned dogs" had been threatened with death by a neighbor for trespassing, so when the beast came home with his mouth open, druling, and his tongue too big for his mouth, of course poisoning for revenge was suspected. Found under the tongue, or at the frænum, a glairy, smoothly spherical tumor, continuous with the tongue, about its base. Diagnosed inflammation of submaxillary glands due to a blow,

probably a kick. I should have said dog had been absent not much over an hour.

I lanced the tumor in four or five places, bathed with hot water all night, followed by boracic acid wash. Was able to drink next morning and did so ravenously. Ate next day.

Should I call it ranula?

[If the tumor incised was cystic in character it was a "ranula"; if it was solid, it then belonged to some other class of tumor, whose nature could be demonstrated by the microscope. —EDITOR.]

DILATATION OF THE ŒSOPHAGUS IN A STANDARD-BRED WEANLING COLT.

By E. M. NIGHBERT, V. S., Mt. Sterling, Ill.

A standard-bred weanling had been noticed very much emaciated and unthrifty. It was unable to partake of any food except from nursing its mother, which was its only sustenance. It was sold very cheap at public auction and taken away from its mother. After forty-eight hours it was seen to grow weaker.

I was called and found on the left side of the neck a swelling in the situation of the œsophagus as large as my arm, commencing near the pharnyx and increasing in size to opposite the sixth or seventh cervical vertebra. There was a fœtid breath and a discharge of partly decomposed food from the nose, which it had tried to swallow.

Upon manipulation the enlargement seemed to be filled with air, and no pain was evinced. I gave an unfavorable prognosis and ordered warm milk given with beef tea occasionally, and a little whiskey, hoping to improve the patient so that I could resort to some sort of an operation.

Death took place thirty-six hours after my examination. It was held for several hours for autopsy, but I was unable to make one on account of other business. I am unable to trace or find out the cause of the trouble in this case, only that two months previous to death the patient was noticed to be dull and unthrifty and partook of no food except from its mother.

A FRACTURE WITHOUT CREPITUS.

By FRANCIS ABELE, V. S., Quincy, Mass.

Was called to a horse that was on a four-horse team, used in the granite business. One of the heavy blocks fell off and onto him. When he was extricated from the resulting tangle it was found that he walked on three legs, the off front one being com-

pletely displaced at the fetlock joint, the end of the metacarpal protruding. A man with a pistol was sent for. Before he arrived, however, the horse had tried his weight on it, with the result that the displacement was reduced. I could perceive no crepitus; could flex the joint; had some synovitis. I suspected some severe complication, as careful soaking in hot corrosive failed to act at all. Patient ate well, got up and down, but with difficulty (building too weak to support slings). As trouble did not respond to treatment, killed him. He showed transverse fracture of metacarpus into joint. Can't understand now why I had not detected crepitus. Should say that personally I did not see the protruding bone, nor post-mortem.

MELANOSIS.

By W. F. DERR, V. S., Wooster, Ohio.

On May 29, 1897, I was consulted about a grey mare, with an enlargement on the middle of the right shoulder, said by the owner to be the result of the collar, from hard plowing during the fall of 1896.

The animal was a grey Norman, eight years old; the enlargement was non-inflammatory and painless to the touch; could do work of any kind without any inconvenience. At this time the enlargement was about the size of a base-ball, but more flattened. The owner informed me that if she rested a week it would be reduced in size considerably. My friend, Dr. J. D. Fair, being at my place on a visit at the time, advised a seton drawn through it and saturated with tincture of cantharides, which was done.

On June 5 I had a telephone from the owner that the enlargement was terribly swollen, extending down over the pectoral region and back to the elbow, with no discharge from the seton whatever. I advised some internal treatment, with warm fomentations over the parts and later a warm poultice to be placed over the same. On the 8th I made a visit to the case. The enlargement was very unsightly, the tumefaction extending along the abdomen to the mammæ, with a great deal of constitutional disturbance, the animal being down and unable to rise without assistance. After getting her on her feet I made an incision into the tumor to the depth of about four or five inches, from which escaped a very black and tarry fluid, and from the character of it I made up my mind that I had a case of melanosis, and so informed the owner, and gave an unfavorable prognosis. After due consideration the owner insisted on my

treating the case a few days longer. I scarified the swellings along the abdomen and gave laxatives, febrifuges, and diuretics, with hot fomentations over the shoulder. On the 12th I again saw her, and in assisting her to rise I found that she had but little control of her posterior extremities.

I made a rectal examination and found a large mass extending around and posterior of the kidneys, painless on pressure, which I diagnosed as a melanotic tumor of large dimensions.

I advised the destruction of the animal, but the owner thought otherwise, and wanted treatment continued, which I did for several days longer, when he destroyed her. The post-mortem was made by the owner, and I can only give his description of the case. He brought me the tumor that he took out of the abdomen; also the one out of the shoulder, the latter being a conglomeration of tumors, the whole mass weighing 24 lbs. This animal was raised and owned by this man up to the time of her death, and never had there been any tumor seen by him until the one on the shoulder.

The question is, did the insertion of the seton in the shoulder stimulate the growth of these tumors to such an extent as to cause paralysis of the posterior extremities?

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By Prof. Olof Schwarzkopf, Flushing, New York.

Statistics of Results from Schmidt's Treatment for Parturient Paresis.—District Veterinarian Neverman presents in the *Berliner Thierärztliche Wochenschrift* (No. I., 1899) a statistical summary of Schmidt's treatment of milk fever, collected from the reports of 41 veterinarians. Of 358 cases, 296 were cured, 25 died, and 37 were slaughtered before recovery or death. The percentage is thus as follows: Recovery, 82.68 per cent.; death, 6.98 per cent.; slaughter, 10.33 per cent. Recovery takes place at varying times, but 55.5 per cent. of the animals treated stood up within ten hours after the injection. The milk secretion remains decreased during five to eight days after injection, but the milk itself appears normal in color, smell and test. Only two cases of mastitis were reported as following the treatment, but diarrhœa, often quite profuse, and a slimy nasal discharge, have been reported in a majority of cases following the iodide of potassium treatment.

Neverman concludes by saying that Schmidt's treatment will prove to be a boon to country veterinarians and agriculture at large.

FOOT-AND-MOUTH DISEASE SERUM.—According to reports of several district veterinarians the new agent "seraphthin," prepared by the Hochteo Farbweske for the immunization of animals against foot-and-mouth disease, has not proven a reliable protection lymph.

CHEMICAL REACTION OF THE MEAT OF SLAUGHTERED ANIMALS.—Edelman and Mack have undertaken a series of experiments to determine the normal chemical reaction of the meat of slaughtered animals. Of 1876 carcasses, so tested, 8.6 per cent. showed an alkaline reaction, traceable to various diseases, injuries from transport, weakness of heart with insufficient bleeding, emaciation, hog-cholera, etc. A very fat hog which appeared healthy, and which during a rather scanty bleeding, was lying on the left side, showed an alkaline reaction of the meat of the left side and an acid reaction on the right side The acid reaction of healthy meat was found to take place from three to six hours after slaughtering, but even here considerable variations have been noticed. The experiments will be continued to determine, if possible, whether a simple test with litmus paper can be safely used to discriminate between wholesome and unwholesome meat in the market halls.

BELGIAN REVIEW.

MAMMARY ACTINOMYCOSIS OF SWINE [*By J. Hamoir*].—In this animal, though muscles and tonsils are frequently the seat of actinomycotic growths, the mammæ are still more commonly affected, where they present themselves under peculiar conditions. Ordinarily located in the median mammæ, they begin by an induration at the basis of the teat, gradually increasing and soon reaching the size of the fist, spreading to the surrounding glands without contracting adhesion to the contiguous ventral skin. The growth is then bosselated, lobulated, covered with varicous skin and has the consistency of a fibroma. When ulcerated, the ulcer is fungous, of various sizes with well defined borders. The tumor is not painful and its presence does not seem to interfere with the general health. It is not very vascular and is easily enucleated. The treatment is surgical, and if properly done there is but little danger of return. It consists in the extirpation of the tumor by exposure of the growth through

an incision *involving the skin only*, and an enucleation, carefully avoiding all lesion of the tissue of the growth for fear of inoculating the field of operation and causing a return of the growth. It is also necessary to remove the glands immediately in front and behind the diseased one. The wound heals readily. For the author the surgical treatment, from the economical point of view, is preferable to that by iodides.—(*Annales de Med. Vet.*)

DIRECT CONTENTION OF FRACTURES IN DOMESTICATED ANIMALS [*By Mr. J. de Luyck*].—After a few remarks upon the value of the means used in the treatment of fractures and their division into indirect and direct, basing his experiments on the result already obtained in human surgery, and on the innocuity of the presence of neutral and immobile foreign bodies in tissues, the author relates the result of four observations, in which he had recourse in two cases to the application, on the external surface of the fragments of bone, brought in perfect adaptation, of two metallic splints, held in place by screws running through the bone from one splint to the other; in two other cases, he strengthened the adaptation and the position of the bone by placing into the medullary cavity a silver tube extending into it above and below the seat of the fracture. With these last two cases Mr. de Luyck applied only one metallic plate on the outside surface of the bone. The external wound was treated antiseptically. In the first case it was a cat, which two weeks after was able to rest on his leg and in four weeks was scarcely lame. The fourth case was an old, worn-out horse, in which one of the hind cannons had been experimentally broken. After some five weeks' treatment he was destroyed. In the second and third experiments, he used dogs. With them, a silver tube had been introduced into the medullary canal of the bone and a single metallic plate screwed on one side of the external face of the bone. Both of these animals recovered. From the results of these two successful experiments the author concludes that (1) it is possible to have a foreign neutral and immovable body in the medullary canal of long bones; (2) on the external face of the periosteum of those same bones; (3) even in their thickness, and (4) that it is possible to open a direct communication between the medullary canal of long bones and the outside atmosphere. He advises either of these means for large animals: (1) Two steel splints, of proper shape and size, applied on the periosteum and held solidly in place by four bolts, two for each fragment; (2) a cylinder, made of the form and size of the medullary cavity and one sus-periostic

splint. The cylinder should have two taped holes, and the splint two plain and corresponding to these. The cylinder introduced into the medullary canal, the splint should be put in place and both held in place by screws running through them and the bone also.—(*Annales de Med. Vet.*)

QUEER SEQUELÆ OF A PRICK IN THE FOOT [*By Mr. Conreur*].—As remarked by the author, the interest of this case rests principally on the pathogeny connected with it. It is that of a horse that has been lame for some time, though not enough to be unable to work, but which became so suddenly as to be almost disabled. At the examination of the foot, increased sensibility is found on the inside of the foot, only on a limited surface, and on paring the sole the opening of a tract, like that formed by the prick of a nail, is found and from which a dark greyish fluid is escaping. The sole is pared thin, flaxseed poultices are applied and five days after the horse returns to his work. Two weeks later, the lameness has returned, the symptoms of the foot are the same as on the previous occasions and Mr. Conreur supposing that there is a little splint of necrotic bone proceeds to extirpate it. But instead of the bone he finds a white mass, round in shape, beanlike in appearance. Pressure on that mass gives rise to great pain; its extraction is followed by an abundant hæmorrhage. This tumor is white, semi-transparent and hard. The widest part is opaque and has a greyish centre. Cut into, it shows a white powder, surrounding a black point, a small piece of iron. To the microscope, the tumor is formed of horny, epithelial cells, without pigment. Recovery occurred rapidly afterwards.—(*Annales de Med. Vet.*)

VETERINARY LEGISLATION IN NEW YORK.

Mr. E. C. Brennan introduced in the New York Assembly on February 6th the following bill (No. 650), which was read once and referred to the Committee on Public Health:

AN ACT

IN RELATION TO THE ESTABLISHMENT OF A STATE LIVE STOCK SANITARY COMMISSION, AND TO PROVIDE FOR THE CONTROL AND SUPPRESSION OF TUBERCULOSIS AND OTHER DANGEROUS DISEASES OF DOMESTIC ANIMALS.

The People of the State of New York, represented in Senate aud Assembly, do enact as follows:

SECTION 1. There shall be established as part of the State Government a commission to be known as the "State Live

Stock Sanitary Commission," which commission shall consist of the Governor of the State ex-officio, and five other commissioners, to be appointed by the Governor by and with the advice and consent of the Senate, as follows: The Commissioner of Agriculture, a practical breeder of live stock, and the Secretary of the State Board of Health, and two competent and qualified veterinarians, who are graduates in good standing of some recognized and reputable veterinary college. Each commissioner shall be appointed for a term of four years and shall be subject to removal by the Governor for incompetency or neglect of duty.

SEC. 2. It shall be the duty of the commission to protect the health of the domestic animals of the State; to determine and employ the most efficient and practical means for the suppression, control or eradication of any dangerous, contagious or infectious disease among the domestic animals, and especially of tuberculosis, and for these purposes it is hereby authorized and empowered to inspect or cause to be inspected by their duly authorized agent or agents, all milch cows, cattle or other domestic animals, and the same to be re-inspected from time to time as may be deemed necessary, and to establish, maintain, enforce and regulate such quarantine and other measures relating to the movements and care of animals and their products, especially that of milch cows, to cause the disinfection of suspected localities, all premises, buildings, railroad cars, vessels and other objects from or by means of which infection or contagion may take place or be conveyed, and shall order or cause to be ordered the destruction of any or all animals as it may deem necessary.

SEC. 3. Whenever it shall be adjudged necessary to the interest of the live stock industry of this State or to the welfare of the public to kill any animal or animals suffering from some contagious or infectious disease, especially tuberculosis, or any animal or animals likely to carry contagion, and an agreement cannot be made with the owner or owners thereof as to their value, two appraisers shall be appointed, one by the owner or owners of the animal or animals, one by the commission or a commissioner, and, in case of a disagreement, a third by the two, who shall under oath or affirmation appraise the animal or animals at their actual value at the time of the appraisement, and the owner shall be paid one-half of said appraisement; provided, that no such appraisement shall exceed fifty-five dollars for any single head of cattle unregistered animal; or seventy-

five dollars for any single head of cattle registered, and forty dollars for a single glandered horse or mule; and further, provided, that no animal or animals found to be infected with any contagious or infectious disease within ninety days after having been brought from another State into the State of New York, shall be paid for, but, notwithstanding, the commission shall be authorized to slaughter or cause to be slaughtered such animal or animals if in their judgment such a course is necessary to the interests of the live stock industry or to the welfare of the public; and provided, that in case it shall be found that the autopsy does not show or produce evidence of any contagious or infectious disease at the time of slaughtering, and were so slaughtered or destroyed by order of the commission, commissioner, or their duly authorized agent, the entire appraised value of the animal or animals shall be paid to the owner or owners.

SEC. 4. The commission or commissioner, or their duly authorized agent, shall have the right to suppress the use or sale of any milk, product or products, of any animal or animals whatsoever, whenever they or he should deem it necessary for the welfare of the public, by reason or otherwise of any contagious or infectious disease existing, or reasonably thought to be existing in any animal or animals that produce milk or any product sold for food, whether it be the product of, or the animal itself; when such suppression is so enforced, especially by reason of tuberculosis in milch cows, the commission, commissioner, or their agent, shall send notice to such local Board of Health in the locality that such supply is used, of such suppression, and shall cause a notification to be sent to such Boards of Health as soon as such suppression or quarantine has been removed.

SEC. 5. The commission, or any commissioner, or any of their duly authorized agents, shall at any and all times have the right to enter any premises, farms, fields, pens, abattoirs, slaughter-houses, buildings, cars or vessels, where any domestic animal is at the time quartered, or wherever the carcass of one may be, for the purpose of examining it in any way that may be deemed necessary to determine whether they are or were the subjects of any contagious or infectious disease, and may call upon the sheriff or deputy sheriff, constable or peace officer of any county wherein such action is necessary to carry out and enforce the provisions of any notice, order or regulation which may be made for the purpose of carrying out the provisions of this act, and all such sheriffs or deputy sheriffs, constables or peace offi-

cers shall obey and observe any and all such orders and instructions which they may receive from the commission or commissioner, or duly authorized agent, in the premises.

SEC. 6. Any person violating, disobeying or disregarding the terms of any notice, order or regulation issued or prescribed by the commission, commissioner, or duly authorized agent under this act, in destroying or defacing any mark or sign upon any animal that may be placed thereon by the commission, the commissioner, or their duly authorized agent or caused by them to be placed thereon for the purpose of identification of such animal, shall forfeit to the people of the State the sum of one hundred dollars for every such violation, or in default of such payment may be convicted by the local police justice for a term not more than thirty days in the county jail for each and every violation.

SEC. 7. The commission is hereby empowered to employ such assistants and agents and to purchase such supplies and materials as may be necessary in carrying out the provisions of this act, and to administer oaths or affirmations to the appraisers appointed under this act.

SEC. 8. The inspectors of the bureau of animal industry of the United States shall have the right of inspection, quarantine and condemnation of animals affected with any contagious, infectious or communicable disease, or suspected to be affected with such diseases, or that may have been exposed to any such diseases and for such purpose they may enter upon any grounds or premises, they may call the sheriffs, constables and peace officers to assist them in the discharge of their duties in carrying out the provisions of any such act, and all sheriffs, constables and peace officers shall assist such inspectors when so requested, and such inspectors shall have the same powers and protection as peace officers while employed in the discharge of their duties. The State shall not be liable for any damages or expenses caused or made by such inspectors.

SEC. 9. The compensation of the commissioners shall be fixed each year by the governor.

SEC. 10. All expenses incurred by the State Live Stock Sanitary Commission in carrying out the provisions of this act and in performing the duties hereby devolved upon it shall after approval in writing by the Governor and President of the State Live Stock Sanitary Commission, be audited by the comptroller and the sum not exceeding fifty thousand dollars, or as much thereof as may be necessary is hereby appropriated out of any

money in the treasury not otherwise appropriated for carrying out the provisions of this act.

SEC. 11. Article four of the agricultural law of the State of New York, is hereby and is repealed, and all acts or parts of acts that may conflict with this act or the enforcement of or carrying out of any of the provisions of this act are hereby and are repealed.

SEC. 12. This act shall go into effect within thirty days after its passage, within which time the commission shall be appointed and confirmed as hereinbefore provided.

The following bill (No. 100) was introduced in the Senate by Mr. Willis, read twice, and ordered printed, and when printed to be committed to the committee on public health :

AN ACT

TO PREVENT THE INTRODUCTION OF TUBERCULOSIS INTO THE DAIRY AND OTHER HERDS OF CATTLE IN THE STATE OF NEW YORK.

The People of the State of New York, represented in Senate and Assembly, do enact as follows :

SECTION 1. All bovine animals imported into the State of New York, excepting fat cattle for immediate slaughter, must be accompanied by the certificate of an approved veterinarian, official or otherwise, stating marks for the identification of the individual animals, and giving the temperature records, of a tuberculin test made in the course of the thirty days immediately preceding the importation. The State official who shall be in charge of tuberculosis in cattle at the time of the introduction of such animals, shall furnish a written permit for the importation of such cattle, when he shall have assured himself that the certificate applies to the cattle in question, and that it has been furnished by a veterinarian of character and ability, and of approved experience in the use of the tuberculin test.

SEC. 2. All railroad, steamboat, ferryboat and other carrying companies are forbidden to receive store cattle in any other State, for transportation to any destination within the State of New York unless such cattle are accompanied by the required certificate and by the written permit of the New York State official charged with the duty of furnishing the same.

SEC. 3. In case store cattle shall have been imported into the State without the required certificate and permit provided for in section one of this act, it shall be the duty of the State official, in charge of bovine tuberculosis, to cause all such ani-

mals to be subjected to the tuberculin test, and to see that all such animals giving indications of tuberculosis are slaughtered. No indemnity shall be paid by the State to the owners for any tuberculosis cattle that have been brought into the State, after the passage of this act, without a certificate of having successfully stood the tuberculin test.

SEC. 4. Any person or persons violating this act shall be guilty of a misdemeanor and, on conviction thereof, shall be punished by a fine of not less than twenty-five dollars nor more than two hundred dollars for every such offence, or by imprisonment for not less than one month nor more than six months or by both such fine and imprisonment, and for a second offence by an imprisonment for not less than six months and not more than one year.

SEC. 5. This act shall take effect immediately.

[*From the Breeder's Gazette.*]

TREATMENT OF SWINE DISEASES.

By D. E. SALMON, D. V. M., Chief of the Bureau of Animal Industry.

It has long been known that when persons or animals have suffered from an attack of contagious disease and recovered they resist that particular contagion for the remainder of their lives, even though they are exposed to it. There are exceptions to this rule, but they are not sufficiently numerous to affect the principle. The animals which have recovered from such a disease and which consequently have the power to resist it are said to be immune; those which have not had an attack but which are liable to be affected when exposed are said to be susceptible.

The subject of immunity has received many years of patient study from the ablest scientists in the world, because it has been clear that a thorough knowledge of this condition would be a long step toward the control of the greater part of the contagious diseases. This study has shown that there are different degrees of immunity, and that when an animal has had an attack of a contagious disease and recovered, although it is immune to a small dose of that contagion, if the dose is sufficiently increased it will have a second attack of the same disease. When we say an animal is immune, therefore, we ordinarily mean that it is capable of resisting the quantity of contagion which is liable to penetrate into its body under the usual conditions of life.

The production of a certain degree of immunity by inoculation and by vaccination has been a favorite method of combating several of the destructive contagious diseases of animals and has been extensively tried with swine diseases, as was explained in the preceding article. In experimenting with inoculation it was discovered that a comparatively small quantity of the blood of an immune animal, if injected into the tissues of a susceptible animal, would produce immunity in the latter and would also, in case the animal was suffering from the disease, have a curative effect.

This was a most wonderful and unexpected discovery, which has been particularly utilized for the cure and prevention of diphtheria in the human species. It is a principle capable of quite general application, however, and seems particularly useful for the control of the prevailing outbreaks of swine diseases. It has the great advantage over inoculation and vaccination in the field that it does not distribute the germs and consequently cannot produce outbreaks of disease nor can it injure the animal in any manner.

In practice it is found convenient to draw the blood of the immune animal, allow it to clot or coagulate, and then to remove the liquid portion of the serum for use. The application of this liquid to the prevention or cure of disease is, therefore, called the serum treatment.

In producing this serum on a large scale it is necessary to use large animals which can furnish a considerable quantity of blood at one time without seriously affecting their condition. For this reason horses and cattle are favorite animals with which to produce such serums. To make a horse immue to hog cholera or swine plague it is first inocnlated with a very small dose of the germs of one of these diseases. This inoculation is followed by the symptoms of depression and fever, which vary in intensity and duration according to the size of the dose and the susceptibility of the animal. After the horse has entirely recovered from the effects of this inoculation it has acquired a slight degree of immunity, but its blood does not yet show any appreciable immunizing or curative properties. To develop such properties the animal must be inoculated again and again, with an ever-increasing dose of virus until the highest practicable degree of immunity is obtained. After each inoculation the horse must be allowed to recover entirely from its effects before another inoculation is practiced.

It requires from three to four months of the most careful

treatment to raise the horse's immunity to such a degree that the serum is valuable for the treatment of hogs. Some horses will never yield good serum; others may die from the effects of the virus before they have reached the proper stage of immunity. With skillful management, however, a large proportion of the horses can be made to yield a good serum after three to five months' treatment.

After the horse has been given a proper degree of immunity blood may be drawn from it every five or six weeks; but it will not continue to yield a high quality of serum unless the inoculation with large doses of virus is repeated from time to time.

It is thus seen that the production of serum is a difficult matter, and one which requires the constant services of experts. The virus for the inoculation of the horse must be properly prepared and must be pure. This demands the skill of an experienced bacteriologist. The virus must be administered in proper doses and with proper intervals, taking into consideration the condition of the horse to be operated upon. This can only be determined by the experience and judgment of the operator. Finally the blood must be drawn without permanently injuring the veins, and without allowing it to become contaiminated witn atmospheric or other germs.

If the horse has been treated with hog-cholera virus, its serum will be efficacious for the treatment and prevention of hog-cholera, but will have no effect upon swine plague, and *vice versa*. Now, as we are liable to encounter either one or the other of these two diseases, and frequently find both diseases in the same herd and affecting the same animal, and as it is difficult to distinguish with certainty between these diseases without resorting to tedious bacteriological methods, it is essential that any remedy shall have a favorable effect upon both diseases. To accomplish this object we have used a mixed serum—that is, a mixture of serum from a horse made immune to hog-cholera with other serum from a horse made immune to swine plague. Or a single horse may be made immune to both diseases and will then furnish a serum curative for both diseases. The serum obtained in this way, if carefully bottled for use, will keep for a considerable time. The dose to be used varies from two to five drams, according to the size of the hog. It is injected under the skin with a hypodermic syringe, and one dose is all that is ordinarily given.

As has already been stated, this serum produces immunity in well hogs and has a curative effect on those which are sick.

The duration of the immunity has not been accurately determined, but it appears to be sufficient to carry the animals through the season.

The serum has been used entirely in herds in which the disease had already appeared. In some cases only a few animals in large herds had shown the disease, while in other cases a considerable proportion of the herd was dead before the remedy was applied. As would naturally be expected under such circumstances the results of the treatment vary considerably in different herds. In some large herds 95 to 99 per cent. have been saved, while in others not more than 40 to 50 per cent. were saved. Altogether about 2000 hogs in diseased herds have been treated, and of these about 80 per cent. lived.

In neighboring herds similarly affected and which could not be treated on account of an insufficient supply of serum, about 85 per cent. of the animals in the diseased herds died. This indicates that the difference between a death rate of 20 per cent. in the treated herds and of 85 per cent. in the herds not treated represents the saving to be attributed to the serum treatment. The hogs which recover under this treatment thrive and fatten well. A form of treatment which is easily and cheaply applied and which gives such results as this can only be regarded as a great success and as solving, from the point of view of the scientific investigator, the question of what to do with hog cholera. There are still important questions as to the practical application of the treatment which will be considered in a subsequent communication.

DANISH MODE OF CASTING.

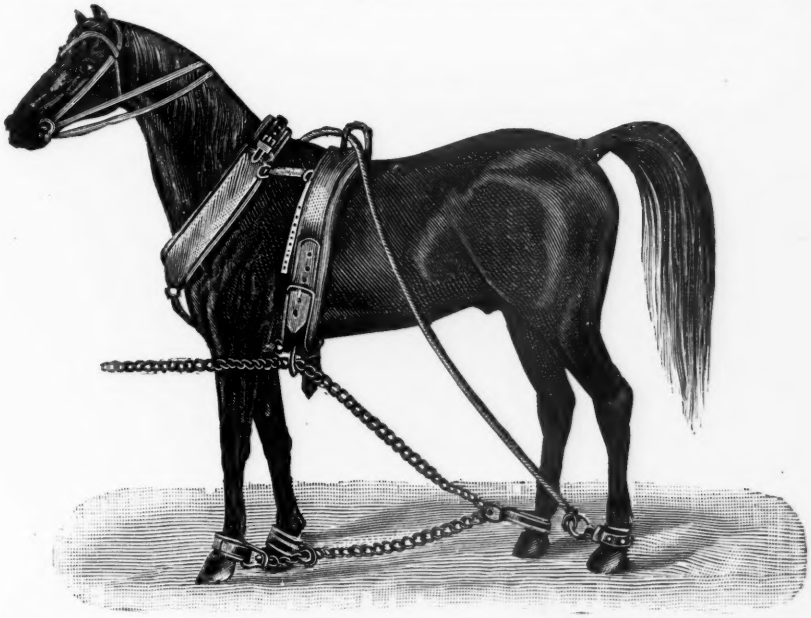
Notwithstanding the great many advantages that are offered by the use of the operating table in securing horses for operations, its cost, the necessity of ample space to establish it, will always be an objection to its admission into general practice, and on that account will always remain more or less practicable for large institutions, extensive establishments or horse-shoeing places of importance. To the ordinary practitioner, to the country veterinarian, hobbles, old fashioned or of improved style, are likely to be more commonly resorted to and for that reason those that are presenting the least chances for accidents and injuries are deserving of special attention.

Our attention was called lately to a Danish apparatus modified by Pfeiffer, published in the *Monatschrift für Praktische*

Theirheilkunde, and for whose illustration here reproduced we are indebted to the kindness of the German house of H. Hauptner, of Berlin.

As will be observed, by the use of this process the casting is done by forcing the animal to flex his legs, followed by its slowly falling on the bed. The legs being tied up to the body, their extension is impossible, muscular contractions are limited and excessive flexion of the vertebral column prevented. Besides this, the guard flexion of the extremities allows full view and easy access to all regions, specially the inguinal.

The Danish hobble is applied as follows: The chest belt



(a) and the collar (b) are put on the horse. If he is to be thrown on the right side, the ring hobble is placed on the near fore leg and the chain passed through that of the left fore and hind leg, to be brought back and run through the low ring of the chest belt. A rope secured to the ring of the hobble of the near hind leg is then carried through the ring at the top of the chest belt. The head is held by assistants. A pull made at the same time on the chain and on the rope brings the legs together—the animal is cast. The chain is fixed in the usual way, and the rope pulling the near hind leg near the body and towards the upper ring of the belt, is secured after twisting round the coronet. The cost of the apparatus is 75 marks, about $16.

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MICROBIAN DISEASES OF ANIMAIS (Les Maladies Microbiennes des Animaux.) By Profs. Nocard and Leclainche. Second Edition. 1898. Published by Masson & Co , Faubourg St. Germain, Paris.

"The first edition of this book, exhausted in eighteen months, has been so kindly received, that a long preface is not required." These first lines of the introduction from the authors show with perfect right how they feel sure of their success ; success which, in fact, is so well deserved. The second edition of the work is superiorly good. Strengthening as it does the excellent qualities of the first, it is called to be among the books of all scientists. It no doubt will find its place also among the ordinary practitioners and the ever-studying veterinarians. The text is concise, the reading clear and easy, and the contents will keep the interest of the reader constantly awake through the 956 pages that the work contains in its twenty-nine chapters.

It is an almost entirely new work that Profs. Nocard and Leclainche present to the public. But the fecundity of the methods due to the genius of Pasteur, is such that most of the subjects treated in the first edition have been modified or transformed on account of the progress made. And, besides, important additions have been made. Among the new chapters must be mentioned: *Tetanus*, *gangrenous septicæmia*, *hæmorrhagic septicæmias of horses*, *bovines*, *sheep and goats*, *coli-bacillar infections*, *epizootic abortion*, *contagious agalaxia*, *aviary diphtheria*, *cerebro-spinal meningitis*. All those questions have been brought down to the point of view of veterinarians ; no doubt a process in favor of the practical instruction of the book.

For all veterinarians that read French "Microbian Diseases" is a work of immense value. The house which publishes it, Masson & Co., present it to the public in their usual fine style of printing, etc. It is to be hoped that a translation will enable English readers to benefit by all its valuable information at an early date.

The first edition has met with success ; we have no doubt that the second will receive even greater appreciation at the hands of the scientist, the sanitarian and the busy practitioner.

IN a recent edition of the New York *Herald* a veterinary infirmary advertises that it receives sick dogs for treatment, and closes the announcement by the significant paragraph that it owns and operates a canine cemetery.

SOCIETY MEETINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order by President Robertson at 8.30 P. M., Feb. 1, 1899. The following members responded to roll-call: Drs. Ackerman, Bell, J. S. Cattanach, Jr., Clayton, Delaney, Dickson, Ellis, Farley, Gill, Grenside, Hanson, MacKellar, O'Shea, Robertson and Ryder. There were also present as visitors Drs. Bertram, Newport, R. I., Walker and Mannix, Brooklyn, and 12 or 15 students from the two veterinary colleges.

The minutes of the previous meeting were read and approved.

A quorum of the Board of Censors not being present, their meeting was deferred until after the reading of the first paper, which was presented by Dr. Ryder, entitled, "Some Fine Points of Opinion in the Examination of Horses for Soundness," as follows:

"EXAMINATIONS FOR SOUNDNESS."

It is not my intention to-night to enter into a general detail of examining horses for soundness, but to present to you briefly three points of unsoundness upon which we frequently disagree, which I cannot say is to our credit, taking into consideration our knowledge of these conditions. At the same time the great difference in opinion so often given by veterinarians is not likely to increase confidence and respect in our profession by the general public.

Before taking up either of my points of unsoundness, I wish to say that my interpretation of the term "sound horse" is, an animal without acute or chronic pathological condition or lesion; "practical soundness," an animal with a chronic pathological lesion, but one which is not likely to interfere with his usefulness. Under these definitions of soundness the conditions I am going to present to you will be unsound.

SPLINTS.—Adhering to the term sound, an animal with a splint must be condemned, but the question so often in dispute is, "When can an animal with a splint be passed practically sound?" That we take into consideration several factors in reaching a decision of this kind is admitted by all, at the same time the public should know that certain factors do exist which may either condemn or pass the animal practically sound. I will admit that a large number of horses are working every day and

going sound with splints, at the same time we know a great many do not.

Dealers almost without exception claim to their customers that a splint is not an unsoundness, and our profession has made no effort to enlighten the purchaser upon the subject; in fact, we have placed him in a position at the present time more bewildering than ever; we have done this by one veterinarian passing the horse without mentioning the splint, or perhaps calling it a blemish, while another condemns him outright or passes him practically sound.

In examining an animal with a splint for practical soundness the following factors should be taken into consideration, viz.: 1, age of the animal; 2, size of the splint; 3, its location; 4, class or breed of animal (work required); 5, action of animal; 6, gait of the animal.

An animal under six years of age should always receive a very close examination, all factors being carefully considered, and the animal *not* to receive the benefit of doubt.

The location of a splint is of the utmost importance in determining his serviceability; if situated close to or at the knee he should be condemned; if on the posterior border of the rudimentary metacarpal, condemned, as should also the commonly called pegged splint, that form which extends across the posterior surface of the principal as well as the rudimentary metacarpal bones. The exceptionally low splint should also receive close attention on account of its great tendency to interfere with the action of the flexor tendons. The knee splint being condemned on account of its tendency to involve that articulation, those on the posterior border of the rudimentary metacarpal and the pegged splint on account of their interference with the action of the flexor tendons. Some practitioners claim that the tendons will adapt themselves to their changed position in a short time and the animal go sound, but my experience has been otherwise.

Size.—This also has important bearing upon practical soundness; an exceptionally large splint should always be regarded with suspicion, immaterial of its location, and unless all other factors are exceptionally favorable, should condemn.

Class or Breed.—In harness and saddle horses the purchaser should receive the benefit of all doubts, as the work required of this class is of the kind likely to cause a recurrence of splint lameness, while in the draft horse who is never or seldom asked to go off a walk the practitioner can be more lenient.

Action.—This is of great importance, and the following should be taken into consideration, viz.: Does he go high, and does he strike the ground hard? The higher his action and the harder he strikes the ground the greater will be the tendency for him to reproduce periostitis, lameness, and increased development of the splint.

Gait.—Does he wind, paddle, travel close, toe-in, etc.? In examining a horse with a splint notice all the irregularities in his gait, some I have mentioned and many others I have not; if any irregularities exist notice if they are likely to cause him to interfere or hit himself; if so condemn. I know a great many horses with an irregularity of gait will go sound for an indefinite period, but you do not know at what moment he will interfere, and reproduce periostitis, lameness and increased development.

I also realize that a great many horses with splints in a bad location, and faulty action, give good service. On the other hand, many do not, and the chances are against them; therefore, I believe we are justified in condemning on the grounds I have mentioned, and if we do not our clients are not receiving justice at our hands. As for a splint being classed as a blemish, I do not believe that any pathological lesion which may under certain conditions cause lameness can be put down as a blemish.

SPAVIN.—When does a coarse hock become a spavin?

Not many years ago the term coarse hock was comparatively unknown; that is, outside of our profession, but of recent years it has become alarmingly common and one used to cover a multitude of sins. Dealers will claim, and I regret to say some practitioners will pass a horse with the term "coarse hock" when he has a spavin that can be photographed a block away, providing he goes anywhere near sound at the time.

A coarse hock is one with well developed cuneiform bones, possibly with the same well developed condition of the principal and rudimentary metatarsal bones; in other words, they are more rough and prominent around this articulation than usual. I may add that at the present time a coarse hock of this kind in a horse six years old or older is more rare than a true spavin.

In examining for soundness it is necessary that we make a correct differential diagosis between a coarse sound hock and one spavined and unsound, in justice to both buyer and seller, for we will all admit that a true coarse hock will stand as much wear and tear as a smooth one and frequently more. We should also bear in mind that it is common to notice in three and four

year olds a pronounced coarseness of this articulation and that with proper care they will fine down by the time they reach their sixth year.

Granting what I have said I do not believe that a finely bred horse with smooth even articulations at other points can have a pronounced *normal* coarseness of one or both hocks, neither do I believe that a horse can have a pronounced enlargement or coarseness, if you like, of one hock and a fine, smooth hock on the opposite side.

The number of spavined horses sold at the present time as being coarse in one or both hocks cannot be imagined by one not in close touch with the sale marts. Again, it is almost beyond one's comprehension how some men can and will stand up and propound theories regarding this condition in order to justify themselves in passing these animals. One case comes to my mind and is as follows, viz.: Several years ago a stallion of international reputation was condemned for spavin by two or three of our most able practitioners, while two or three others passed him sound with a coarse hock, one of whom advanced the theory that animals of this breed, especially the entire horses, were always exercised on a lunge rein, which threw their weight from the centre and almost entirely upon one side, and on account of this a coarseness developed to compensate the articulation for the increased weight it was called upon to carry, forgetting in his argument that animals exercised in this manner are reversed every few minutes, which causes the weight to be continually shifting from side to side. Again, if this condition did develop in one or both legs it would be nothing more nor less than an exostosis (spavin) due to the periostitis which the weight caused if it caused anything.

You will also notice some practitioners condemn horses when this coarseness is situated on or near the anterior surface of the hock and pass a more pronounced condition of the same kind if situated on the internal surface near the posterior border, which I believe is wrong; if a coarseness is sufficient to be called a spavin at one point it is at another, because it is not so conspicuous, does not change its pathology nor its tendency to cause future trouble.

In examining a horse whose hocks are suspicious and where you are in doubt as to the true condition, examine him first cold, drive him, and again when cooled out, trotting him to the halter on each examination, also watch him closely when backing from the stall, and turn him short on both sides. You may also

flex his hocks strongly for a few minutes and then trot him, and if you fail to detect any soreness or irregularity of action at any time during these examinations or manœuvres, both hocks showing you an equal amount of coarseness or very nearly so and then not pronounced, I believe you have a coarse hocked and sound horse.

CURB.—When is a horse with a curb practically sound?

1st. All animals, immaterial of the condition of the curb, under six years of age should be condemned.

2d. An animal of any age with a round bone and a curby conformation (cow hocks) should be condemned.

3d. All large curbs and especially those soft and accompanied with a thickening of the surrounding tissues should be condemned.

An animal over six years of age, all conditions being equal, has the advantage over a young and immature one.

An animal with a good, straight leg, and well developed hock, over six years of age, having a curb of long standing, which is small, hard, and who shows no lameness or irregularity of action either when cold, driving, warm, or after cooling out, can be passed practically sound.

A condition frequently met with and one often causing a difference of opinion, is where the rudimentary metatarsal and cuboid bones extend around upon the posterior border of the leg beyond their usual distance. This condition should be examined very carefully, and if no thickening or enlargement of the sheath of the tendon or exostosis on the bones can be detected, he should be passed as sound; but if this condition exists in an animal of curby conformation, even if no true curb exists at the time, I believe he should be condemned, for we know that if an animal of this kind receives the least hard work a curb will be developed which will be very unsatisfactory to the purchaser and no credit to the examiner.

I have omitted the pathology of these conditions, as we all agree upon it, and have attempted to bring before you in as few words as possible the conditions as they exist and as we meet them when examining for soundness, and I hope that some rule or understanding can be reached by which we can agree, and not render opinions directly opposite to each other, as so often happens at the present.

This paper was freely discussed by the members present, most of them agreeing with the excellent points brought out by Dr. Ryder's essay.

Moved and seconded that a vote of thanks be extended to Dr. Ryder. Carried.

Moved and seconded that fifteen minutes' recess be granted for the Board of Censors to transact the details in hand. Carried. So ordered by President Robertson.

Report of Board of Censors: Dr. Clayton, Chairman, reported that in the case of Dr. J. S. Lamkin, the board sustained the findings of the previous board at the December meeting, and recommended that it take the usual course according to the by-laws of the association, and that the board recommended the acceptance of Dr. J. S. Cattanach's resignation. Moved and seconded that the report be accepted, and that the Secretary notify Drs. Lamkin and Cattanach of the action taken. Carried.

Dr. Ackerman then read a very interesting paper entitled "The Hygienic Marketing of Milk," describing a method entirely new to members, and exhibited a sample of milk bottled by this new process, which was afterwards sampled by the members and proved to be of a most excellent quality. After some discussion, which had to be limited for want of time, a vote of thanks was tendered to Dr. Ackerman.

Dr. O'Shea, Chairman of the Judiciary Committee, then submitted the report from that committee notifying the association that another attack had been made upon our present State law regulating veterinary practice. Moved and seconded that the report be accepted. Carried.

Moved and seconded that a committee be appointed to investigate the legality of the appointment of laymen as meat inspectors, with full power to act. Carried. President Robertson thereupon appointed the following committee to act in that capacity: Drs. H. D. Hanson (Chairman), H. D. Gill and C. E. Clayton.

The following committees were also appointed by the President: O'Shea Testimonial—Drs. J. E. Ryder (Chairman), Roscoe R. Bell and T. Delaney. Prosecuting Committee—Drs. F. C. Grenside (Chairman), H. D. Gill and E. B. Ackerman.

Meeting adjourned at 11 P. M.

ROBERT W. ELLIS, D. V. S., *Secretary.*

CHICAGO VETERINARY SOCIETY.

The regular monthly meeting was called to order Jan. 12th by the President, Dr. Robertson. The following members were present: Drs. Allen, Campbell, Clancy, Dubia, Fish, Howe,

Hughes, Merillat, McCoy, McGarth, Paxson, Pierce, E. L. Quitman, Robertson, Ryan, Walker, Wingate, and Worms.

The Legislative Committee presented a report recommending all members to call upon the representatives and senator of their district and exert every effort to have them exercise their influence in behalf of a bill to be presented to the Legislature for the regulation of the practice of veterinary science throughout the State. The report was accepted and the Secretary instructed to notify absent members of the recommendation of the committee.

Dr. L. A. Merillat then read his paper on "Roaring, Snoring, Whistling, Grunting, Heaves, Weaving, Cribbing, Side-pulling, Balkiness, Chorea and Paresis," as follows:

MR. MERILLAT'S PAPER.

Among the subjects assigned me are "Balkiness" and "Side-pulling." These have already been discussed at length, and, therefore, require no reconsideration. The remaining topics for discussion to-night are "Roaring," "Whistling," "Snoring," "Grunting," "Heaves," "Cribbing," "Weaving," "Chorea," and "Paresis."

Roaring is a name used to denote the abnormal inspiratory souud manifested in horses during more or less severe exertion. It is the effect produced by a stenotic condition of some part of the upper air passages, which may be classified according to location into nasal, pharyngeal, laryngeal, and tracheal.

Nasal stenosis is due to some pathological condition of the uasal cavities, sinuses or their lining membrane.

Pharyngeal stenosis is usually the result of compression of the pharynx by abscesses or tumors in the guttural region.

Laryngeal stenosis in 95 per cent. of all cases is due to vapidity of the left arytenoid cartilage and vocal cord, but may be the result of polypi or any neo-formation.

Tracheal stenosis is ordinarily the result of a previous tracheotomy or of accidental traumatisms, causing, by an inflammatory process, collapse of the tracheal rings. Hyperplastic conditions within the trachea are rare entities.

Animals that have been subjected to tracheotomy are fit subjects for condemnation, as stenosis, especially in young animals, is a frequent sequel. Purchaser must at least be told of the possible result.

Roaring from any of the above or similar conditions must be considered an unsoundness without reservation or exception.

The abnormal respiratory sounds occurring along the course of acute catarrhal affections and which disappear with the mor-

bid process are not to be dealt with too harshly, and animals so affected might justly be referred for future examination, but any abnormal sound following in the wake of such diseases, although they often gradually abort, must always be regarded with suspicion. The veterinarian is never justified in risking a prognosis in such cases.

Whistling is a synonym for roaring.

Grunting is evidently intended to denote the short expiratory sound observed in horses when executing a sharp turn. This sound points to pleural adhesions, the result of a previous pleuritis. It usually follows infectious pleuritis and is frequently associated with roaring. In the horse dealer's vocabulary such animals are called "bulls." The grunting varies with the extent of the lesion, which in many cases renders horses almost useless for heavy or fast work, especially during the warm months Prolonged panting after exertion is ordinarily produced by this condition. Horses so afflicted are unsound, but acute grunting occurring during the preliminary stages of pleuritis, pericarditis, pinkeye, and purpura hæmorrhagica, and rheumatism must be differentiated from the chronic.

Snoring.—If snoring in the equine species is analogous to the ungodly guttural sound produced by the genus homo during his slumbers then I must regard it as evidence of sound health rather than that of unsoundness. If there is anything that savors of good health more than another it is loud snoring. In this I refer to the human, and no doubt the same deduction will apply to the horse. In any event, at $2.00 per capita the examining veterinarian would hardly be expected to sit up nights and patiently wait for the horse to slumber in order to determine whether or not he is an habitual snorer.

Sniffling, although not mentioned on my list, deserves notice, because it is a condition which may be entirely overlooked in an examination. This sound is observed during rest and may be entirely absent during exertion. It is usually the result of circumscribed hypertrophy of the nasal septum near the anterior nares.

Another condition closely allied to the foregoing is atrophy of the nasal dilators due to paralysis of their motor nerve. The nostril being unable to dilate is drawn inward during each forcible inspiration, causing a dyspnœa so severe as to almost suffocate the animal. In partial paralysis these symptoms are modified in proportion to the degree of paralysis and might be so slight as to be mistaken for less serious conditions.

Heaves is a dilatation of the pulmonary alveoli resulting from a variety of functional or pathological derangements. It is clinically manifested by a double expiratory effort to expel the tidal air from the dilated cells. Heaves, however trivial, is a condition which must condemn any animal so afflicted. It can be controlled by careful management, but is never entirely cured and with hard or fast work, careless dieting or improper sanitation will sooner or later render an animal useless.

Cribbing is a habit induced by idleness, and is of two kinds: 1st, cribbing by support, and, 2d, cribbing without support. The latter is also called wind-sucking. The former often terminates in the latter. Cribbing by support is executed in about the following manner: The head is fixed by resting the upper incisors upon some fixed object, air mixed in the mouth with saliva is rapidly forced by suction into the pharynx, which has been dilated by forcible contraction of the omo-hyoideus, and sterno-thyro-hyoideus muscles. As these muscles relax the larynx quickly resumes its normal position, and thus with the contractions of the pharynx forces the air into the œsophagus. Cribbing without support is the same act minus biting.

Cribbing is not an unsoundness, and if the habit did not occasionally result in cœliac diseases, it might be entirely overlooked in examinations. Prejudice, however, forces the veterinarian to reject all cribbers.

Weaving is also a habit caused by idleness. It should not be considered sufficient reason for condemning a good horse. In this I will probably not be upheld by the majority of veterinarians, but I take this stand because weavers are usually high-class horses with unusual powers of endurance.

Chorea is a disease of the corpora striata and optic thalimi, often extending to the cervical cord (this is the statement of recent writers). Its clinical manifestation is that of muscular delirium. It is a common affection of man and the dog, but is rare in the horse. Being a disease with a chronic course, its possessors must be stamped as unsound.

Paresis.—The general diminution of nerve force originating in the higher nerve centres and exerting its effect not only upon the psychic but also the motor and sensory functions of the whole body is a condition I have never observed nor heard of in the horse. Chronic hydrocephalus resulting from an exudation or transudation into the lateral ventricles might be said to cause a paresis. But I fear this nomenclature will not bear up under critical discussion. If, however, the word is intended to denote

a partial peripheric nerve paralysis, para-paresis, or tabes dorsalis, then I can dismiss the subject by simply stating that all such diseases determine decided unsoundness.

DISCUSSION.

Dr. Hughes: I congratulate Dr. Merillat on having so thoroughly covered the ground, and I am sorry that he has not left an opening, allowing us a greater opportunity to criticise his effort. At the same time, there are a few points in which I do not exactly agree with him. Snoring, for instance. Dr. Merillat expresses himself rather lightly regarding the question of snoring. It is a very disagreeable habit and one that markedly lessens an animal's value, and we do not have to stay up all night to hear an animal snore. Snoring in a horse is due to vibration of the membrane between the false nostril and nasal chamber proper. That it may be acquired I have demonstrated to myself by having seen one horse contracting the habit from another, owing to standing in an adjoining stall. The horse referred to snored while standing quietly in the stable, but rarely did so on the street. Dealers are always afraid that a snoring horse will be rejected, and when trotting them out to exhibit them to prospective purchasers will rub their hands down over the nostrils as soon as they bring the horse to a standstill, thus stopping the tendency to snore or snort. Dealers, too, having a pronounced snorer or snorter, put compresses attached to the nose-band of the bridle over the false nostrils, and in this manner prevent it. In regard to grunting I cannot subscribe to the theory that it is always caused by thoracic adhesion. I have held post-mortems on some pronounced grunters, but in two cases have found it was produced by cirrhosis of the liver, one of these cases having a liver weighing nearly forty pounds. There were no pleuritic adhesions in either of these cases, nor was there any abnormal lesions of the larynx present. Regarding cribbing, I would like to ask as to whether it is possible for a horse to swallow air? According to our essayist it is. Is it possible for the pharynx to contract on a volume of air so as to force it down the œsophagus, considering that such air has so many ways of escape? What we do know is, that some cribbers fill up with air, and whether it is liberated as a consequence of indigestion, or whether the air is sucked down the œsophagus, is a question that I have been unable to solve. Regarding chorea, I am surprised to hear the essayist make the statement that it is rare in the horse. I frequently meet with it in my practice. If chorea is rare in the

horse, then I have for years been regarding wrongfully a certain condition as chorea. The condition I refer to is that peculiar spasmodic twitching and contraction of the muscles of the hind limbs or tail exhibited when a horse is backed up or turned around, or sometimes seen when the animal is standing quietly in the stall.

Dr. Merillat: Mr. Chairman, as to snoring, I agree with Dr. Hughes, except in the nomenclature of the condition. The term "snoring," described by physiologists, is a guttural sound produced during slumber—consequently, I took it for granted that you wanted a description of that condition. The trouble Dr. Hughes described is due to muscular atrophy, which is a very common condition. I have a case in mind that was so aggravated that it nearly suffocated during exertion. I do not call this condition snoring. I took snoring to mean nothing else but snoring. If you can get a name for a noise between sniffling and snoring you can name the condition Dr. Hughes describes. Regarding grunting I have stated that it is *usually* due to pleuritic adhesion, following infectious pleurisy, and affecting the left inferior laryngeal nerve, which accounts for its frequent association with roaring. Grunting may also be caused by abdominal lesions. One grunter I held a post-mortem on was found to have an adhesion between the colon and parietal peritoneum. That animal was a fearful grunter. In my experience, however, I have found that a pleuritic condition is the more frequent cause of grunting. In writing these remarks I was at sea in dealing with the word "paresis." Paresis, as a general disease or a primary condition is, I believe, the name applied to a form of human insanity not recognized in the lower animals. The word paresis, of course, might be used to express partial paralysis of special nerves, all of which, as stated in my paper, must be regarded as serious conditions. As to swallowing air, I am in the same fix as Dr. Hughes, so far as my own observations are concerned. I have, however, observed that when a bloated cribber is tapped with a trocar and canula the gas will not ignite, and has not the characteristic smell of the usual intestinal gases.

Dr. Quitman: I want to add my evidence to this last statement. In the first place, there is no doubt that a human being can swallow sufficient air to swell himself up. In fact, I know a man who does it for fun. If it is possible for a man, it ought to be for a horse. The gas seems to be much cooler than that of fermentation. Then, the horse does not show the in-

tense distress that the gas of fermentation would cause. Paresis is a word that is used in a very broad sense. If I am not mistaken, it was originally meant to describe cerebral softening, but now commonly used to describe a local affection. In regard to cribbing, inasmuch as it happens so often that it turns into wind-sucking, I think it ought to be called unsoundness. Locomotor ataxia is sometimes found in horses. One horse that I have recently condemned was probably the most beautiful case that I ever saw. As far as I could trace it, the case was in existence for about three years and he was useless for over a year. He lacked co-ordination of all four limbs, and if blindfolded and backed he would collapse in a heap. In fact, I have seen a number of similar cases that I would term locomotor ataxia.

Dr. Merillat: Oh, no. Chorea can be cured with time. In human subjects, with age it entirely disappears.

Dr. Campbell: Have you ever seen a case of St. Vitus' dance in a horse?

Dr. Merillat: I think I have.

Dr. Hughes: As to wind-sucking, those who are in the habit of tapping horses have noticed that it is a very common thing not to be able to light the gas. This is found also in horses that are not cribbers. In regard to chorea, Dr. Merillat refers to it as the same as the disease found in humans. He mentions, though, chorea of the dog, which is entirely different in its symptoms from that of man. Why not go a little further, and call this crampy condition so often met with in horses also chorea? We should endeavor not so much from a pathological as from a practical standpoint to find a suitable name for these different conditions. The same as in chorea, a decidedly crampy horse gets worse right along, hence it is a progressive disease, and it will assume an acute form sooner or later, if, for instance, such an animal be attacked with pneumonia or any acute disease. The complication always lessens the tendency to recover and often proves fatal. I always associate rheumatism with chorea, and find it a very difficult matter in many cases to differentiate them. From a practical standpoint, I would ask Dr. Merillat to give a technical name for the condition of a horse that is commonly called "crampy." I examined a horse recently for soundness at the stockyards, and in my certificate stated that the horse had chorea. The case was a very pronounced one, and I naturally rejected him. I was asked by the seller if chorea meant crampy, and I said "yes," as that is the name under which the disease is known to ordi-

nary horsemen. What technical term would Dr. Merillat use to designate such a condition?

Dr. Merillat: I would call it "stringhalt."

Dr. Hughes: In "stringhalt," there is a clean forward automatic movement, with exaggerated flexion. Where there is a hindward muscular action, the animal swinging his legs spasmodically outwards, I would regard it as chorea. The first condition is generally regarded as a local nervous one, the second as a disease in the great nerve centre.

Dr. Merillat: If you wish to call all these little crampy conditions chorea, I have no objection. Chorea is a disease of a chronic course and we have no right to call these crampy conditions chorea, although I know that many authors class them as chorea, though they never fail to state that it is also stringhalt.

Dr. Ryan: As to locomotor ataxia, we often get conditions like that from digestive trouble. I think Dr Hughes' suggestion to apply the term chorea to conditions as described above is a good one. We can safely use it. To say a horse has stringhalt or shivers would not be correct. We cannot expect a horse or dog to have a typical case of St. Vitus' dance as exhibited in the human, and if the cases are similar, there should be no objection to their being called chorea.

Dr. Hughes: I would like if we could come to a decision in regard to this matter. Supposing I examine a horse and state that he has chorea, while another veterinarian would call it a crampy horse. This would cause a considerable amount of damage to a man's reputation. Chorea, as a rule, gets worse with age; hence every horse showing even the slightest symptoms of it should be condemned.

Dr. Ryan: Is it not a poor way in cases of grunters caused by cirrhosis of the liver or enlargement of the heart to certify it being a grunter. Why not specify the cause?

Dr. Merillat: It would be a happy condition if we could.

Dr. Quitman: In regard to chorea of man and dog, I believe them to be identical. You will find in a dog affected with it that his foot will go first one way and then another. It is the same way with the human sufferer, if he, for instance, tries to put a spoon into his mouth. The similar conditions in the horse I would call choreic affections, which would imply that it resembles chorea. I had a case of a horse that had a cramp in one hind leg. I used all methods imaginable—used the whip, etc., but could not break the cramp. It existed ten days in one

leg; then it jumped into the other. What would you call that? I advised the owner to get rid of the horse.

Dr. McCoy: I think Dr. Quitman's client evidently got rid of him, for I saw a similar case on the street the other day. As to cribbing and weaving, are they entirely diseases that come from idleness?

Dr. Quitman: I am inclined to believe that cribbing of young horses is sometimes brought on by irritation of the teeth. It seems that they will attempt to draw the air in to cool the inflamed gums. We know that older horses sometimes take it, but it is evidently a habit.

Dr. Merillat: Friedberger and Fröhner give three causes: Heredity, idleness and association. They also quote a large percentage of army horses that became cribbers from idleness.

Dr. Clancy: In regard to a proper name for this crampy condition, why not call it "pseudo-chorea?"

Dr. Hughes: Pseudo is a prefix that in my opinion should not be used. Call it chorea and settle every doubt.

The discussion was very spirited and frequently interrupted by applause. JOSEPH B. CLANCY, *Secretary.*

IOWA STATE VETERINARY MEDICAL ASS'N.

The meeting was called to order in the Savery House Club Room, Des Moines, January 10, at 10 A. M., by the Secretary. There being neither President nor Vice-Presidents present, Dr. D. H. Miller, of Harlan, Ia., was made President, *pro tem.*

Instead of the usual roll-call, those present were asked to write their names on a register provided for the purpose. Later, on the register was found the signatures of members present as follows: Dr. P. O. Koto, Forest City; S. T. Miller, Shelby; H. E. Talbot, Des Moines; D. H. Miller, Harlan; A. S. Brodie, Cedar Falls; G. E. Noble, Osage; M. Stalker, Ames; S. Whitbeck, Decorah; J. I. Gibson, Denison; H. Shipley, Sheldon; W. B. Niles, Ames; S. H. Kingery, Creston; S. K. Hazlit, Oelwein; J. G. Parslow, Shenandoah; Jno. E. Brown, Oskaloosa; P. Malcolm, New Hampton; S. H. Johnston, Carroll; R. R. Hammond, Le Mars; Wm. Drinkwater, Monticello; A. A. Peters, Wintersett; H. L. Stewart, Oakley; C. E. Stewart, Chariton; W. H. Austin, Newton; A. T. Peters, Lincoln, Neb.; J. A. Campbell, Des Moines; J. F. Kennedy, Des Moines.

The following named visitors were also present: F. J. Nieman, Marshalltown; C. W. Stevens, Knoxville; H. E. Titus,

Maxwell; H. S. Titus, Rhodes; G. E. Noble, Osage; Senator J. M. Emmert, Atlantic; —— Yeoman, Des Moines.

The minutes of the last annual meeting were read and approved.

Drs. Shipoy and Talbert were appointed to fill vacancies on the Board of Censors.

The Treasurer rendered a report showing all bills paid to date, and $28.83 in the treasury. Drs. Whitbeck, Koto and Brodie were appointed as an auditing committee and the Treasurer's report was referred to them.

The Secretary's report was read, being in part a review of the life history of the organization. It said in part: "Organized in 1887 with 16 charter members, it began a sort of '*home mission*' effort. Art. II. of our Constitution says:

"'The objects of this association are, the mutual advancement of its members in veterinary science, the cultivation of fraternity, and the elevation of the veterinary profession.' What could be of greater interest to the veterinarians of Iowa? 'Mutual advancement in veterinary science.' Let the watchword be upward and onward, and by united effort we will advance. 'Cultivation of Fraternity,' meaning a more intimate acquaintance, a closer relationship, a brotherhood, a kindliness of feeling one for another, co-operation in all things pertaining to the advancement of the profession's interests, and, 'Elevation of the Profession.' As to the association's influence along these lines there can be no doubt. It would be impossible for any wide-awake, observing student of veterinary science to attend one of our meetings and not receive some new light. Our meetings have excited the most complimentary notices from veterinarians in almost every State in the Union. As to what the association has done toward 'elevating the profession'—Do we believe that through the association we have made 'any gains along that line'? Is there a man here who has been practicing the veterinary profession for ten years past in Iowa who does not believe that the profession has a higher standing with the general public of to-day than it had ten years ago? And have the influences that have gone out from these meetings in one way and another played any part in bringing about such a change? Have the joint sessions that we have held with the members of the State Agricultural Society, and the more intimate relationships between veterinarians and stockmen thus resulting, played any part? In Iowa we now have about 200 graduated veterinarians. With the increase of veterinarians in

the State, we have not kept a corresponding increase in our membership. Why is this the case? I know that the veterinarians of this western country during the past few years have, to put it plainly, been *hard up*, and many of them have answered my letters, saying their practice would not justify the expenditure of a sufficient amount of money to attend the meetings. The one thing needed above all others, if it were possible, would be to issue printed reports of our meetings. Last year arrangements were made whereby the report might have been published in the report of the State Agricultural Society, but two of the papers were not turned over to me at the time of the meeting and I failed to get them in time to go in. The report of our meeting two years ago was to have been printed by the publisher of the *Veterinary Magazine*, but the publication suspended before our proceedings got in print. After this meeting we will have the notes and papers of the last three meetings in hand, which should by all means be published."

Discussions then followed on subjects pertaining to the interests of the association and the veterinary profession, in which Drs. Brodie, Whitbeck, Gibson and others took part, the impression prevailing that the veterinarians generally appreciate the value of the association, and that the membership and attendance at the meetings will increase as the price of live stock increases and business improves. On vote the report was accepted.

The Board of Censors reported favorably on the applications for membership of G. E. Noble, D. V. S., Osage, Ia.; H. E. Titus, D. V. M., Maxwell, Ia.; F. J. Neiman, V. S., Marshalltown, Ia., and C. W. Stevens, M. D. C., Knoxville, Ia., and on vote all were duly elected to membership.

The meeting then adjourned until 1.30 P. M.

Afternoon Session.—Meeting called to order by President Johnston. The Auditing Committe then reported having examined the Treasurer's accounts and found the statements as rendered to be correct. The report was then accepted and the committee discharged.

President Johnston then addressed the meeting as follows:

"*Gentlemen of the Iowa State Veterinary Medical Association:*

"It is with pleasure I greet you, another year of our association's life has passed into history, a year of marked progress in veterinary science, and only those interested in the work know what marked advantages the present veterinarian has over the past. It is the duty of every veterinarian to educate, as far as

possible, those interested in the benefits to be derived from veterinary science, rather than work in that mysterious way so commonly met with among the uneducated in all professions, to some extent, but especially so in ours. The assembling together of so many different minds cannot help but result beneficially, but the veterinarian should always remember that the man makes the profession—*not* the profession makes the man. He should be of exemplary habits,—upright, honorable and just in all his dealings between his employer and himself. It is with regret that I see the deplorable results of ignorance, as displayed through lack of veterinary education in the U. S. Army, when millions of dollars worth of property is left to the care of uneducated veterinarians, the sufferings of the bravest animals in war, and the most docile in peace, being unnecessarily increased. The Iowa State Veterinary Medical Association, of which we have a right to feel proud, came into life in the year 1887 at Ames, Ia., with 16 charter members. Dr. A. B. Morse, of Des, Moines was its first president, and Dr. J. J. Street of Ames was secretary. In the past ten years we have enrolled one hundred and forty-five members, some of whom have left the State and others have been suspended for non-payment of dues; leaving our present organization with about seventy-five members in good standing. There should be no excuse now. The past few years were not very remunerative to veterinarians, but the present prospects are much brighter. It is unnecessary for me to dwell on the condition of our State laws. We should make united efforts to improve them. Let each member seek to so educate his legislators that they may understand that it is to benefit the general public, and not for party or class pecuniary motive that we are working, then I will have no doubt of the results. It is encouraging to note that the medical profession is awakening to the realization of the transmission of disease through diseased meat and milk and we hope and trust that very soon all abattoirs and dairies will be operated under inspection and supervision of qualified veterinarians. Under the campaign of our veterinary and medical journals, assisted by the public press, good results should follow in the near future. Our programme for this meeting has been selected with great care and diligence on the part of our Secretary, and it is for you, gentlemen, to make the meeting the success it should be by fully participating in the discussion. By so doing, we will go home feeling that we have been well repaid for our efforts."

The reading of correspondence was then called for. The

Secretary read a communication from the Missouri Valley Veterinary Association, through its Secretary, inviting the members of the I. S. V. M. A. to become members of their association. The invitation was duly appreciated, but it was apparently the sense of the meeting that as a body we had no authority to take any action, farther than to leave it with the members to do as they might see fit individually.

A letter was also read from Dr. D. E. Salmon, Chairman of the Committee on U. S. Army Legislation for the American Veterinary Medical Association, soliciting aid for that cause. The members were requested to do what they could personally, and a committee appointed to draft suitable resolutions. The members of the Committee on Resolutions were: Drs. Niles, Whitbeck and Parslow.

The report of the Committee on Sanitation was called for. Dr. Stewart was the only member of the committee present, and he had no report to offer. This being a very important subject, it was decided to devote some time to discussion thereon.

Dr. Miller thinks that veterinarians generally have not given the attention to the subject they should. He thinks they should be sufficiently well posted to give intelligent advice to farmers and others on such subjects, and a special effort made to educate the public along the line of general sanitation; thinks the easiest and best way to control contagious disease is by quarantine measures; thinks "prevention better than cure."

Dr. Johnston thinks this the only means of controlling contagious diseases, and farmers should be so taught.

Dr. Willis says we need more and better laws on the subject; that farmers are not inclined to take sanitary advice, and there should be laws to enforce it.

Dr. Brown thinks the laws we already have should be enforced. We have a State law prohibiting any traffic whatever in dead hogs, hogs that have died of *any* disease, or been killed on account of *any* disease, and yet they are hauled over the public highways to rendering establishments. The same State law provides that dead hogs shall either be burned, or buried three feet below the surface. We go through the country and find these dead hogs piled up in the fence corners, or lying in the fields where they dropped, decaying and the germs of disease being washed down into streams, or carried by dogs, birds, or other means over the country, and still we cry for *more law* and talk about controlling hog cholera while this sort of thing exists all over the State.

Dr. Whitbeck thinks hog cholera can be controlled by proper quarantine regulations, and advocates a State law giving veterinarians authority to issue quarantine.

Dr. Austin says one of the worst features with which he frequently comes in contact is the persistent feeding of dead stock to live stock, as practiced by the Germans, especially of his locality.

Discussion closed and Dr. Niles reported for Committee on Disease and Treatment.

Discussion followed on parturient apoplexy and the Dr. Schmidt treatment with pot. iodide. Dr. Talbot tried it twice, both cases died. Others have tried it with mixed results.

In regard to the diarrhœa of calves, Drs. Niles, Drinkwater, Austin, Johnston and others think it follows only where the cows have been *highly fed.*

Dr. Niles has not seen the disease in grass-fed cattle.

Dr. Brodie asks if Dr. Niles don't think the disease comes as an infection through the umbilical cord?

Dr. Niles thinks not in this form.

Dr. Shipley thinks it may be due to an entire change in food during later pregnancy.

Dr. Hammond saw three herds, twenty cows in each herd; the first three or four calves that came first were healthy, after that all the calves died.

Dr. Whitbeck spoke of the hard growths which form after castration in pigs.

Dr. Johnston says it is an adhesion of the divided cord to wound in scrotum; removes with knife.

Dr. Stewart thinks these adhesions are the result of the cord being divided too close to the testicle. Compared it with castration of mules; says the cord is longer in mules than in horses, and more of it should be taken off.

Dr. Shipley thinks the trouble sometimes due to the incision being too small and too high.

Dr. Austin castrates sheep with emasculator; cuts off the bottom of scrotum and both seeds at once with the instrument.

Dr. Shipley asked about sheep dips. The Fort Collins lime and sulphur dip was recommended.

Dr. Talbot reported good results in a large flock by four dippings with a solution of chloro-naptholeum.

On the use of cathartics, Dr. S. Whitbeck reports good results from the use of from ʒ iv. to ʒ vi. of aloes made into bolus with sp. terebinth, administered per rectum; empty rectum

by enema, then insert ball as far as one can reach; gets an action in from two to six hours, usually about four hours.

Dr. Johnston has had good results in this way.

Dr. Miller uses a capsule.

Dr. Shipley uses large doses of nux vomica in these cases, administered per rectum.

Dr. Niles reported for Committee on Speakers for Institutes saying that several speakers had been placed, but that the institute season was well advanced before the work was undertaken. The report was accepted and the committee continued another year.

The meeting was then adjourned until 8.30 P. M.

Evening Session.—Joint meeting of I. S. V. M. A. and Iowa State Agricultural Society was called to order by President Johnston.

Dr. W. B. Niles was introduced and read a paper on "The Practicability of Serumtherapy in Hog Cholera."

Discussions were then indulged in.

Dr. McBirney was called for, giving some of his experiences in using the treatment in Page County. He said that on the whole, the results were more satisfactory than last year. That it had been the means of saving about 80 per cent.

Dr. Stalker: How is the comparison arrived at between treated and untreated stock?

Dr. McBirney: The method is to leave an equal number of both diseased and healthy animals untreated. It was only used in diseased herds.

Dr. Niles saw two herds in adjoining fields, equally exposed and under equal conditions. The treated herd fared much better than the untreated one.

Dr. Peters, of Lincoln, Neb., said they had treated about 5000 head, 76 per cent. of which were sick, and they had saved 80 per cent. of all. Used as "*checks*," healthy animals of the same herds. Of these over 80 per cent. died Much more is known of serum to-day than ever before. The serum we are using now is much stronger and better. Serum *will be* practical as a treatment for hog cholera.

Dr. Wallace, editor of the *Farmer*, thinks the only way to get rid of hog cholera is through quarantine, isolation, etc.

Dr. Stalker says with proper authority and management, giving township trustees absolute control and authority to quarantine and dispose of sick hogs, $80,000 will stamp out the disease.

Discussion closed.

Dr. J. M. Emmert, late member of the State Board of Health, and now State Senator from Cass Co., was introduced and read a paper on "A Campaign of Education." The paper was much enjoyed by all present, and discussions again followed.

Dr. Gibson said one subject which is deserving of some special thought is infectious catarrhal pneumonia in cattle. It is becoming something of a scourge in Iowa, and it may yet require some special attention from our legislature to cope with it. It seems to be working its way westward from eastern centres. He also spoke on the contagiousness of and spread of tuberculosis as he had observed it while serving in the capacity of State veterinarian, giving several illustrations.

Dr. Stalker reported a case where he was called to examine the cattle and found several of them to be tuberculous. He also found that from the family that had used milk from these cattle five young people had recently died of consumption. Investigation failed to show that the ancestors of these young folks had ever been afflicted with the disease.

The meeting then adjourned to meet for clinical part of the programme at Dr. Talbot's office next morning at 9 A. M.

(*To be continued.*)

MONTREAL VETERINARY MEDICAL ASSOCIATION.

A regular meeting of this association was held on Wednesday evening, January 18, in the library of the college, Dr. Baker presiding. There was a good attendance of members, supplemented by the presence of Drs. Sugden and Moore. After roll-call and the reading of the minutes of the last meeting, the Chairman called upon Mr. McGregor for his "Case Report," which was one of "Perforation of the Abdominal Wall in a Three-year-old Colt." This animal was wounded in the abdominal parieties by some object (supposed to be a piece of wood, or such like object), and as it was a considerable distance from home, was not attended until the following day, and on examination revealed a wound in abdomen about 2½ by 3 inches in size, a few inches behind the last rib, somewhat infero-laterally, and from which protruded peritoneum in a mass of about eight or ten inches in length. Having nothing better at hand, it was removed by a pair of scissors and the hæmorrhage arrested by cold water being freely applied. Wound was washed with a solution of corrosive sublimate, 1-1000, and sutured. Fever slight; administered febrifuges and ordere

animal to be fed on soft diet. Dressed wound twice per day with a carbolic solution. Next day abdomen began to swell and continued doing so for four or five days, reaching as far as stomach and extending well up sides; swelling of an œdematous character. Applied hot fomentations and poultices. About fifth day pus began to flow from wound and continued to do so for two weeks. Dressed wound with carbolized oil. Swelling began to recede and in four weeks animal made complete recovery.

After some discussion on the case, the Chairman called upon Mr. Hammond for his essay on "Hog Cholera and Swine Plague." In this interesting essay Mr. Hammond clearly defined the differences existing between these two diseases, although to a great extent they resembled each other; as it required an examination of the internal organs after death to clearly distinguish between them, and owing to the similarity of the two diseases could not say what proportion of the loss entailed by these diseases could be attributed to the one and what to the other, as hog cholera and swine plague not only resemble each other in symptoms, but also in their effect on the bodies of the affected animals. Both were caused by germs and both germs must be combatted by similar means to destroy them after they have been introduced upon the premises. Both diseases were infectious and had to be treated along similar lines and the agents used to destroy the germ of one would destroy that of the other. Mr. Hammond said that of the other infectious diseases which sometimes attack hogs, they had not been introduced into this country, or have never approached in their destructive character the two diseases named. The erysipelas of the continent of Europe appears to be the most fatal of the swine diseases, in the country where it is known, but has, however, never been recognized in America and probably never introduced into this country. Anthrax occasionally affected hogs, but was infrequent and confined to certain regions and affected other animals besides. This and erysipelas were the only diseases liable to be mistaken for hog cholera and swine plague.

The virus of hog cholera was particularly more fatal to young pigs, was more tenacious and more resisting to the conditions which affect the vitality of bacteria than that of swine plague and was more easily communicated and spread to healthy animals. Period of incubation varied between four and twenty days, during which time the germs were multiplying slowly, and overcoming the vital powers of the animal by their pro-

ducts. The bacilli of hog cholera were slightly larger and more elongated than those of swine plague, and were provided with flagellæ, which enabled them to move rapidly in liquids, while the germs of swine plague had no such appendages and were involuntarily moved about by the liquid in which they floated. The essayist went on at length to describe the differences between these two germs, their mode of invasion and the different methods of producing them experimentally. After enumerating the symptoms common to the two diseases, Mr. Hammond said that although the symptoms were not noticeably different, yet frequently, however, the lungs are extensively inflamed in swine plague, and in that condition the breathing is more oppressive and labored and the cough more frequent and prompt. The course of the disease varies from one to two days to two to three weeks. As to the diagnoses, he said that after enumerating the various symptoms presented, we could readily come to a conclusion that either one or both the diseases were present. Prognosis unfavorable, especially if the animals were very susceptible and the contagion very virulent. The loss sometimes reached 95 to 100 per cent., but at other times if the animals were more capable of resisting the contagion, it did not exceed 20 to 60 per cent., but what animals did recover from the disease often remained lean, stunted in growth, or never become really healthy hogs. As to the treatment of the disease, he said that the use of anti-toxic serum appeared at present to be a much more promising method, combined with sanitary regulations, of diminishing the losses. The serum is prepared by inoculating horses and cattle with cultures of the diseased germs, and repeating these inoculations with gradually increasing doses until the animals have attained a proper degree of immunity. The blood of such animals injected under the skin possesses the power of curing sick hogs and of preventing well ones from taking the disease. Unless the blood is to be used immediately after drawn, which is not often the case, it is allowed to coagulate and the liquid portion or serum is separated and preserved for future use, so that we have every reason to believe that in the serum we have a practical method of preventing the greater part of the losses from these diseases; but it would have to be tested on a larger scale before absolute assurance could be given, but hoped that all doubts would be cleared up by the experiments planned for 1899. The essayist then enumerated the characteristic post-mortem lesions of the disease, concluding by drawing attention to the fact that in hog cholera the

first effects of the disease were found to be on the intestines with secondary invasion of the lungs, and in swine plague the first effect was found to be on the lungs, and the invasion of the intestines a subsequent process.

A discussion ensued with especial regard to the use of anti-toxic serum as a prophylactic and curative remedy, being finally conceded that the results so far obtained were of practical value.

The Chairman then addressed the meeting with regard to the quarantine regulations and the method of stamping out the disease. He said it was a well established fact that ordinary treatment was useless, but hoped for good results from the use of anti-toxic serum. In Canada the disease had never reached a grave proportion, but had been a scourge to some parts of the United States, and as they had had the diseases before in Canada, we reaped some benefits in regard to the work of combating them. He attributed our small loss to the vigorous methods the government had taken in regard to these diseases, and that the owners of animals should co-operate with the government to aid in their suppression, and concluded by thanking Mr. Hammond for his excellent paper.

Mr. Henderson was appointed essayist for next meeting, and Mr. Gellatly to report a case, after which the meeting adjourned.

JOS. MCGREGOR, *Sec.-Treas.*

MINNESOTA STATE V. M. ASSOCIATION.

The fourth semi-annual meeting was held on January 12th and 13th, at the State Experimental Farm, St. Anthony Park, Saint Paul, Minn. A large number of the city and country members were present.

The reading of the Secretary's and Treasurer's reports were dispensed with for the time being, and the clinical programme proceeded with.

Dr. M. H. Reynolds presented a number of interesting cases of obscure lameness, among which was one of embolism of the femoral artery; a case of recovered osteoporosis was also presented, which had been cured by the daily administration of phosphate of lime. The same case was shown to the attending members at the meeting held a year ago, when the animal was suffering from a very pronounced attack of osteoporosis. Dr. R. Price, of Saint Paul, presented a case of a well-bred pointer dog which had been shot in the lumbar vertebræ and as a resnlt the nigh hind leg remained in a condition of tonic spasm with the back badly arched. The dog was destroyed and a minute dis-

section showed a blood clot at the base of the brain. Dr. C. C. Lyford, of Minneapolis, presented a case of deafness in a well-bred bull dog as a result of an injury. The Doctor also made a very interesting dissection of a horse's head presenting extensive injuries to the roof of the mouth. Dr. B. A. Pomeroy, of Saint Paul, presented a chestnut gelding which had recovered from a very severe attack of purpura hæmorrhagica, giving a full history and treatment of the case. Dr. Reynolds gave a demonstration in caponizing.

The members then adjourned until after supper, when the meeting was called to order by Vice-President Reynolds.

After the reading of the Secretary's and Treasurer's reports, the Secretary read an address from President N. S. Erb, in which the latter expressed his sincere regrets at not being able to attend, and wishing the members a successful and prosperous meeting.

A lively discussion then followed on dealing with cases of illegal practice, and a number of important motions to that effect were made and carried.

The following members then reported some interesting cases: Dr. J. S. Butler, of Minneapolis, "Ossification of Thyroid Gland and Portion of Larynx following the Operation for Roaring;" "Retention of Pus in Sinuses Necessitating Trephining." Dr. C. C. Lyford, case of "Tenotomy." Dr. W. Amos, of Owatonna, presented a very fine specimen of a two-headed calf delivered by him a short time ago. Dr. J. N. Gould, of Worthington, reported an interesting operation for a tumor in a cow. Dr. J. A. Hanish, of Lake City, presented a tooth deposit found in an abscess of the thyroid gland.

The nomination of officers then took place, and the following were elected for the ensuing year. President, Dr. M. H. Reynolds, of St. Anthony Park; First Vice-President, Dr. S. H. Ward, of St. Cloud; Second Vice-President, Dr. W. Amos, of Owatonna; Secretary and Treasurer, Dr. L. Hay, of Faribault. Board of Trustees—Drs. M. H. Reynolds, L. Hay, K. J. McKenzie, R. Price and C. C. Lyford.

The meeting then adjourned until January 13th, when the following operations were demonstrated: Cunean tenotomy, Dr. K. J. McKenzie; anterior and posterior tibial neurectomies for relief of spavin lameness, Drs. S. D. Brimhall and K. J. McKenzie; arytenoideraphy, Dr. M. H. Reynolds, Dr. W. Amos acting as anæsthetist; ovaridectomy in a bitch, Dr. J. J. Annand.

The meeting adjourned for dinner, after which the clinical

programme was continued as follows: Tenotomy, Dr. C. C. Lyford; cauterization of tendons, Dr. B. A. Pomeroy; extracting the third lower molar tooth, Dr. J. P. Anderson; cauterizing exostosis on inside of tibia, Dr. J. S. Butler; a dissection of inguinal region, Drs. Brimhall, McKenzie and Annand; high plantar neurectomy for ringbone in hind leg, Dr. L. Hay; low and high plantar neurectomies for naviculartharitis, Dr. C. C. Lyford.

Meeting adjourned for supper.

At 7:30 a bay horse was cast, which was supposed to be a one-sided cryptorchid, and Dr. K. J. McKenzie proceeded to operate, when he found on each side of the scrotum cicatrices from former incisions: as the right testicle was down, and the owner left word that the hidden testicle had not as yet been removed the Doctor naturally made his incision on the left side; after separating, however, the fibrous thickening he found what he pronounced to be the stump of the spermatic cord. The history of the case was then cleared up. Some time ago the horse had been cast for operation by an unskillful castrater, who removed the left testicle, which at that time was down, and made an incision on the right side in the attempt to get the right testicle, which, however, at that time was located high up in the inguinal canal, but had since descended. Such a case as this proved to be a very instructive one in cryptorchid castration and confirmed the fact that the owner's word cannot be relied upon in these cases. Anterior and posterior tibial neurectomies, Dr. M. H. Reynolds.

A vote of thanks was then tendered Drs. M. H. Reynolds and S. D. Brimhall for their courtesy and assistance in making this meeting such a successful one, after which the meeting adjourned. L. HAY, V. S., *Sec'y and Treas.*

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Dr. R. W. Hickman, of New York, and Dr. S. Stewart, of Kansas City, have already come to an understanding as to plans and methods for the meat inspection display at the next meeting, and the prediction is made by the latter gentleman that the collection of specimens will contain a much greater variety and be much better arranged than was accomplished on the first trial and on short notice. He says: "You cannot present this matter so strongly to the readers of the REVIEW that they will not declare that the display exceeded their expectations when they come to examine it. This feature alone should prove

highly attractive and instructive to the veterinarians of the East, and West for that matter. The specimens may be utilized by the Colleges in your State should they desire to procure them after the display."

Dr. Roscoe R. Bell, of New York, will present a paper upon the subject of "Acetanilid as an Antipyretic for the Horse."

Dr. W. H. Dalrymple, of Louisiana, offers a paper on "Dietetics."

Dr. W. L. Williams, of New York, has informed the Secretary that he will present a paper.

Dr. H. D. Gill, of New York, has consented to read a paper descriptive of an operation which he will perform at the surgical clinic. So has Dr. Paquin.

Dr. Charles E. Clayton, of New York, has indicated his willingness to participate in the surgical clinic.

The Committee of Arrangements have already secured possibly the best arranged room for the surgical clinic in the United States—the sales ring of the American Horse Exchange, at Fiftieth Street and Broadway, and a veterinarian, Dr. Wm. J. Magee, of New York, will place in position one of his operating tables for the use of those who prefer it. The centrality of the Exchange, the room, light, and general appointments are perfect, and the committee was extremely fortunate in securing it.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The fifteenth annual meeting of this association was called to order by the Secretary, January 12th, in the State Street House, Trenton, at 11 o'clock, the President and several other members being detained at home by illness. Dr. Miller was elected President *pro tem.* Both essayists being absent, the regular routine business was concluded, excepting the election of officers. The Committee on Resolutions on the death of Dr. Dustan, of Morristown, offered the following report:

WHEREAS, It has pleased Almighty God, to remove from our midst and from this association our friend and brother, Dr. James C. Dustan, therefore,

Resolved, That while we bow in humble submission, we recognize that we have sustained a great loss, in that he was one of our most influential and highly respected members, one who had endeared himself to each and all, by his gentlemanly deportment, his kindly acts, and by his sense of honor and regularity in the practice of our honored profession.

Resolved, That we recognize our loss and the loss to the community in which he practiced the profession of his choice, and we recommend to

our fellow-members that they emulate the example he set before us, and try to follow closely the precepts he always endeavored to teach and practice.

Resolved, That a copy of these resolutions be sent to the bereaved family, and be filed in full in the records of this association.

[Signed] Drs. W. B. E. Miller, L. P. Hurley, R. O. Hasbrouck, J. W. Hawk, and S. Lockwood, *Committee.*

Moved that the same be accepted.

The meeting then adjourned for dinner and to continue Feb. 2, 1899, at 1 P. M. in Newark.

Meeting reconvened at the Arlington Hotel, Newark, on Feb. 2d, at 1 o'clock. The President, Dr. W. H. Arrowsmith, in the chair. After dinner, the meeting proceeded with the regular business. The election of officers resulted in the following: President, L. P. Hurley; First Vice-President, R. O. Hasbrouck, Second Vice-President, H. W. Read; Secretary, S. Lockwood; Treasurer, B. F. King; Trustees, W. B. E. Miller, W. Runge, J. W. Hawk, J. M. Everitt and M. M. Stage. All were elected for two years.

Dr. Arrowsmith made a lengthy address and introduced Dr. Hurley, the new President, who responded in a short and forcible speech. He was followed by Drs. Miller and Hawk. Dr. Read, the essayist, was excused from reading his paper, as it was time for his train.

Essayists for next meeting, Drs. Arrowsmith, Miller, and Hasbrouck. Delegates to the New York Associations, Drs. Hawk and Lockwood; to the Pennsylvania Associations, Drs. Hurley, Hasbrouck and Brown. Adjourned to meet at same place in May.

S. Lockwood, *Sec'y.*

PENNSYLVANIA STATE V. M. ASSOCIATION.

The annual meeting will be held in the Veterinary Department of the University of Pennsylvania, 360 Pine St., Philadelphia, March 7 and 8.

The programme follows:

Papers.—Dr. J. C. Michener, "Prognosis"; Dr. A. N. Lushington, "Stock Farm Veterinary Practice as a Post-Graduate Course"; Dr. J. F. Butterfield, "Castration of Cryptorchids (Ridglings)"; Dr. W. S. Phillips, "Tracheotomy in Laryngitis and Choking"; Dr. Otto Noack, "Azoturia"; Dr. N. E. Reinhart, "Tuberculosis in Dairy Cattle and How Shall We Get Rid of It?"; Dr. Leonard Pearson, "An Argument for Municipal Slaughter-Houses"; Dr. R. G. Rice, "The Use of Chloral Hydrate in Indigestion and Colic"; Dr. J. B. Irons, "Fracture of

Tibia"; Dr. J. W. Adams, "Differential Diagnosis of Lamenesses Located Within the Hoof."

There will be an evening session on Tuesday, at which Dr. Alfred Stengel will talk upon "Importance to the Public of a Wholesome Meat Supply"; Dr. M. P. Ravenal, "Some Bacterial Diseases of Animals Transmissible to Man," with lantern slides; Dr. Robert Formad, "Pathological Demonstrations"; Dr. John W. Adams, "Suggestions for Improving the Meat Inspection Service of Philadelphia."

During the day sessions the following operations will be shown:

Methods of casting and securing animals for operations, operation for relief of spavin, operation for prevention of cribbing, operation for relief of springhalt, oöphorectomy of cow, oöphorectomy of bitch.

Luncheon will be served on the grounds each day at noon and supper will be given Tuesday night. All veterinarians are invited to attend and thus lend their aid to this meeting in particular and veterinary matters generally.

We hope to have a special railroad rate but as yet cannot say. W. L. RHOADS, D.V.S., *Cor. Sec.*

MAINE VETERINARY MEDICAL ASSOCIATION.

The regular annual meeting of the association was held at Hotel North Augusta, Wednesday, February 11th, at 7.30 P. M. President West in the chair.

Present: Drs. West, Freeman, Joly, Huntington, Purcell, Russel, Stevens and Salley.

The minutes of the previous meeting were read and accepted.

Our Veterinary Legislation Bill was taken up by sections, corrected and made ready for presentation to the Legislature.

Election of officers resulted as follows: President, Dr. W. L. West, Belfast; Vice-President, Dr. F. L. Stevens, Farmington; Secretary, Dr. I. L. Salley, Skowhegan; Treasurer, Dr. A. Joly, Waterville; Executive Committee, Drs. Huntington, Purcell and Freeman.

Dr. Freeman read a paper entitled "A Veterinarian's Duty to His Associates," which was a very good exhortation to each member to do his duty, not only to the animals under his care, but to his associates, both in and out of the meeting.

Moved by Dr. Joly, seconded by Dr. Purcell, to meet at

Augusta on the date of the hearing of our Veterinary Bill by the Judiciary Committee, which will be February 14, at 2.30 P. M.

Voted to adjourn to meet at Augusta in April.

I. L. SALLEY, D. V. S., *Secretary.*

SOCIETY NOTES.

At the nineteenth regular meeting of the Missouri Valley Veterinary Medical Association, held February 27, at Kansas City, Mo., the following operations in the surgical clinic were to be performed: A new operation for the cure of the cribbing habit, peroneal tenotomy for the cure of stringhalt, and cunean tenotomy for the cure of spavin. The literary programme was as follows: "Tuberculosis of Swine," by Dr. James S. Kelly, St. Joseph, discussion led by Dr. S. Stewart, Kansas City; "Leucæmia," by Dr. B. F. Kaupp, Kansas City, discussion led by Dr. J. C. Milnes, Kansas City; "Injuries to the Flexor Metatarsi," by Dr. R. C. Moore, Kansas City; "Echinococcus Veterinorum," by Dr. S. Stewart.

We have received an exhaustive report of the last meeting of the Ohio State Veterinary Medical Association, held at Columbus, January 11 and 12, and as it is very interesting we desire to print it in full in one number, which will be done in the April REVIEW.

Read the list of operations performed at the late meeting of the Minnesota State Veterinary Medical Association, and ask yourself if the example is not a good one to follow in your own Association.

NEWS AND ITEMS.

DR. E. L. VOLGENAU has left Buffalo and taken charge of the local branch of the Bureau of Animal Industry at New Haven, Conn.

DR. VOLGENAU TO MARRY.—Mr. and Mrs. Herman Bernhardt, of Elmwood Avenue, Buffalo, N. Y., announce the engagement of their daughter Jessie and Dr. E. L. Volgenau.

AT the annual meeting of the New York State Agricultural Society, Veterinarian G. Howard Davison was elected one of the Vice-Presidents, and John T. Claris, V. S., of Buffalo, official veterinarian.

AUREL BATONYI, the noted driver, purchased in Chicago the second week in February for a wealthy English gentleman,

a high-stepping coach-horse for $5000, the highest price we have ever seen recorded for this class of horse. He had been searching for such an animal for two years.

LONG PRICES FOR SHIRE HORSES.—Fifty Shire horses belonging to the Earl of Ellesmere were sold at Stetchworth, Newmarket, Eng., Jan. 11, for $20,255, an average of about $405. The highest price was 500 guineas given by Sir J. Blundell Maple for the four-year-old mare Juno of Worsley 9th.

THE HORSELESS.—During the recent blizzard the automobile proved its worthlessness in heavy going. Six of them were stuck in snow-banks on the New York Boulevard at one time, the wheels responding to the motive power by simply whirling around without progression. Horses were obtained from nearby livery stables and the things dragged back to their headquarters.

AN EVERY-DAY DISINFECTANT.—Veterinarians have no doubt overlooked the fact that the common bar soap (potash soap) is a very good disinfectant, it destroying germs of various kinds. It performs its duty probably better than some of the so-called antiseptic soaps. In these days where the germs producing various diseases are becoming better understood, antiseptics (both internally and externally) play no little part in the treatment of many affections. F. X. T.

DR. MAURICE O'CONNELL, of Holyoke, Mass., has just returned from an extended trip to the West, in search of health, having visited California, New Mexico, and other States. We are pleased to announce that his mission was eminently successful and he returns to his duties in the Bay State thoroughly recovered. In commemoration of his safe return the city of Holyoke has appointed him city veterinarian at a salary of a thousand a year, while Governor Wolcott renewed his confidence in his ability by re-appointing him a Cattle Commissioner for the term of three years.

FRENCH STALLIONS.—Under the law of 1892 the French government is empowered to maintain 2800 stallions for public service. For some months past a strenuous effort has been made by advocates of the thoroughbred to induce the government officials to increase the number of thoroughbreds and decrease the number of trotting and carrossier stallions kept for public service. The agitation in favor of the running horse failed of results, however, as the officials declined to alter the proportions of stallions of the various classes. They stand about as follows: Thoroughbreds and Arabs, 550; demi-sangs, 1850; draft horses (chiefly Percherons), 400.

THE DIPPING OF CATTLE.—Col. Albert Dean, in pursuance to orders from D. E. Salmon, Chief of the Bureau of Animal Industry at Washington, has ordered dipping cattle to be discontinued at all of the vats and has placed inspectors at the different dipping stations to carry out the orders. This ruling was made by the Bureau on account of the many complaints of losses at the several dipping vats. The results at the Mammoth Springs Station have been fairly successful, but at Fort Worth and East St. Louis the losses from death have been severe in a great many instances. Experiments are being conducted by Dr. Norgaard at Claybourg, Tex., near Corpus Christi, with different dips. The present formula is regarded as too severe, particularly in the winter months. The Bureau has not given up the idea of dipping to prevent Texas fever, but has simply concluded to carry the experiments further and demonstrate its feasibility beyond a doubt. However, it is practically admitted that no further dipping will be done with the present Government formula during the cold weather. The officials of the Bureau believe the dynamo oil and sulphur dip is all right in warm weather, but think it is too hard on the cattle in colder climates. In the experiments now being conducted linseed and lard-oil are being tried with prospects of success.—(*Kansas City Drovers' Telegram.*)

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In making up my REVIEWS to be bound I am short of the following numbers: Vol. XIII, July, September, October (1889); Vol. XVII, January (1894); Vol. XVIII, February (1895). As I cannot obtain these from the publishers, I will give the regular rates or a slight advance, or will exchange any of the following which are duplicated in my file: Vol. XIV, October (1890); Vol. XIX, February, March, and April (1896). Address ROBERT W. ELLIS, D. V. S., 509 W. 152d Street, New York City.